

## Assessment Guidelines for Master or Chief Mate on Vessels of 3,000 GT or More (Management Level)

### Standard of Competence

Every candidate for an STCW endorsement as Master or Chief Mate on Vessels of 3,000 GT or More (Management Level) must provide evidence of having achieved the required standard of competence as specified in Table A-II/2 of the STCW Code (46 CFR 11.305(a)(2) and 11.307(a)(2)). The table below is adopted from Table A-II/2 of the STCW Code (found in Enclosure (5)) to assist the candidate and assessor in the demonstration of competency.

### Practical Skill Demonstrations

These assessment guidelines establish the conditions under which the assessment will occur, the performance or behavior the candidate is to accomplish, and the standards against which the performance is measured.

### Qualified Assessors

A shipboard Qualified Assessor who witnesses a practical demonstration may sign the appropriate blocks and pages in the Record of Assessment in Enclosure (3) or an equivalent record. All assessments must be signed by a qualified assessor approved by the Coast Guard in accordance with 46 CFR 10.405. In order to facilitate the transition to this new requirement, the Coast Guard will accept assessments that have been demonstrated in the presence of and signed by an assessor who has not been Coast Guard approved until December 31, 2016, provided that the assessor meets the professional requirements in 46 CFR 10.405(a)(3) to assess competence for the specific endorsement. Assessors must be in possession of the level of endorsement, or other professional credential, which provides proof that he or she has attained a level of experience and qualification equal or superior to the relevant level of knowledge, skills, and abilities to be assessed (46 CFR 10.405(a)(3)). In the interim, the Coast Guard will accept assessments signed by mariners who hold an appropriate national endorsement and have at least 1 year of experience as Master or Chief Mate on seagoing vessels of at least 1,600 GRT and/or 3,000 GT. After December 31, 2016, QAs must be approved by the National Maritime Center to conduct the assessment (46 CFR 10.405).

### Notes

- Course** The assessment may be satisfied by successful completion of a Coast Guard approved or accepted course.
- Note 1** Mariners holding STCW endorsements as Master or Chief Mate of 500 GT or More and Less Than 3,000 GT do not need to complete these assessments.
- Note 2** Not required for an endorsement limited to near coastal waters. These assessments must be completed to remove the near coastal limitation.
- ARPA** Not required for mariners serving exclusively on vessels not fitted with an Automatic Radar Plotting Aid (ARPA); a limitation will be added to the endorsement indicating that it is not valid for service on vessels equipped with ARPA.
- ECDIS** Not required for mariners serving exclusively on vessels not fitted with an Electronic Chart Display and Information System (ECDIS); a limitation will be added to the endorsement indicating that it is not valid for service on vessels equipped with ECDIS.

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**Assessment Guidelines for Master or Chief Mate on Vessels of 3,000 GT or More (Management Level)**

Task No./Name	STCW Competence	Knowledge, Understanding, and Proficiency	Performance Condition	Performance Behavior	Performance Standard
1.1.A Create a voyage plan <i>Note 1</i>	Plan a voyage and conduct navigation	Voyage planning and navigation for all conditions by acceptable methods of plotting ocean tracks, taking into account <ol style="list-style-type: none"> <li>.1 The General Provisions on Ships' Routing</li> <li>.2 Restricted waters</li> <li>.3 Meteorological conditions</li> <li>.4 Ice</li> <li>.5 Restricted visibility</li> <li>.6 Traffic separation schemes</li> <li>.7 Vessel traffic service (VTS) areas</li> <li>.8 Areas of extensive tidal effects</li> <li>.9 Ship Reporting Systems and VTS procedures</li> </ol>	On a ship or in a navigational laboratory, and provided with chart catalogs, charts, nautical publications, and vessel particulars,	the candidate creates a voyage plan for a coastwise voyage of at least 600 miles, a segment of which must be at night and in restricted waters.	The candidate's plan: <ol style="list-style-type: none"> <li>1. Considers and utilizes:               <ol style="list-style-type: none"> <li>a. The condition of the vessel, equipment, operational limitations, draft and maneuvering characteristics;</li> <li>b. Any special characteristics of the cargo and its stowage;</li> <li>c. Crew members' competency and rest status;</li> <li>d. Up-to-date ship's certificates and documents;</li> <li>e. Up-to-date charts of proper scale, and the latest notices to mariners and radio navigational warnings;</li> <li>f. Up-to-date coast pilots, sailing directions, and other information sources appropriate for the voyage;</li> <li>g. Relevant routing guides;</li> <li>h. Up-to-date tide and current tables and atlases;</li> <li>i. Weather information;</li> <li>j. Weather routing services;</li> <li>k. Ship reporting systems, VTS and environmental protection measures;</li> <li>l. Vessel traffic density for the route;</li> <li>m. Pilotage requirements and information exchange; and</li> <li>n. Port information, including emergency response capability.</li> </ol> </li> </ol> <p align="right"><i>Continued on next page</i></p>

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1.1.A <i>Continued</i> Create a voyage plan <i>Note 1</i>					<p style="text-align: center;"><i>Continued from previous page</i></p> 2. Contains: <ol style="list-style-type: none"> <li>a. Courses plotted on the appropriately scaled charts noting the ETA at each way point, including the final way point;</li> <li>b. Courses and distances between way points which were correctly calculated and indicated on the charts;</li> <li>c. The most direct route that avoids all hazards to navigation by the margin of safety of 3 miles, where possible;</li> <li>d. Areas of all required speed changes;</li> <li>e. Minimum under keel clearances in critical areas; positions requiring a change of machinery status;</li> <li>f. Waypoints of all course changes;</li> <li>g. Methods and frequency of position fixing, including areas requiring the highest accuracy;</li> <li>h. Positions and radio hailing frequencies or channels where port authorities, pilots and VTS services must be notified are noted on the relevant chart;</li> <li>i. State of the tide and currents at the port of departure for the times of departure and transit were determined; and</li> <li>j. A contingency plan for alternative actions in cases of emergency.</li> </ol>

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1.2.A Great circle sailing <i>Note 1</i> <i>Note 2</i>	Plan a voyage and conduct navigation	Voyage planning and navigation	In a navigation laboratory or on a ship, given a latitude and longitude of departure and latitude and longitude of arrival at least 3,000 miles apart, and using a calculator (non-programmable or programmable), sight reduction tables, and/or U.S. Pub. No. 9 Tables,	the candidate calculates the great circle route between the point of departure and the point of arrival.	1. The candidate's great circle route contains the: <ol style="list-style-type: none"> <li>Initial course, which is within <math>\pm 1^\circ</math> of the assessor's solution;</li> <li>Total distance, which is within 1 nm of the assessor's solution; and</li> <li>Position of the vertex, which is within 1.0 nm of the assessor's position;</li> </ol> 2. The candidate's positions of points along the great circle at intervals of $5^\circ$ (300 miles) are within 1 nm of the assessor's solution.
1.2.B Mercator sailing initial course and total distance <i>Note 1</i> <i>Note 2</i>	Plan a voyage and conduct navigation	Voyage planning and navigation	In a navigation laboratory or on a ship underway, given a latitude and longitude of departure and a latitude and longitude of arrival at least 1,000 miles apart, and using a calculator (non-programmable or programmable), sight reduction tables, and/or Pub. No. 9 Tables,	the candidate calculates the Mercator course and distance between the point of departure and the point of arrival.	The candidate's: <ol style="list-style-type: none"> <li>Initial course is within <math>\pm 1.0^\circ</math> of the assessor's solution; and</li> <li>Total distance is within 1 nm of the assessor's solution.</li> </ol>

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1.2.C Mercator sailing final position  <i>Note 1</i> <i>Note 2</i>	Plan a voyage and conduct navigation	Voyage planning and navigation	In a navigation laboratory or on a ship underway, given a latitude and longitude of departure and a course and distance for a passage of at least 1,000 miles, and using a calculator (non-programmable or programmable), and/or Publication No. 9 Tables,	the candidate calculates the final position using Mercator formula.	The candidate's final position is within $\pm 1.0$ nm of the assessor's solution.
2.1.A Meridian transit (other than sun)  <i>Note 1</i> <i>Note 2</i>	Determine position and the accuracy of resultant position fix by any means	Position determination in all conditions by celestial observations	On a ship underway, with a celestial body other than the sun at upper transit and a clear horizon,	the candidate measures the altitude of the body as it crosses the meridian of the observer and calculates the latitude of the ship.	The candidate's latitude is calculated at meridian passage and must be within $\pm 1.0$ nm of the assessor's solution.  <b>NOTE:</b> The assessor may permit the use of an Ex-Meridian to compensate for weather, cloud cover, or other reason which he or she deems necessary.

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2.1.B Star identification <i>Note 1</i> <i>Note 2</i>	Determine position and the accuracy of resultant position fix by any means	Position determination in all conditions by celestial observations	On a ship or in a navigational laboratory, using a star finder or navigational publication, such as Pub. 249, and given the times of observation, altitudes and azimuths of three unknown stars,	the candidate identifies the three stars.	The candidate correctly identifies the three stars within 20 minutes.
2.1.C Star selection <i>Note 1</i> <i>Note 2</i>	Determine position and the accuracy of resultant position fix by any means	Position determination in all conditions by celestial observations	On a ship or onshore with a suitable horizon, or in a navigational laboratory, given the time of observation,	the candidate identifies the best three stars or planets to obtain a fix.	The candidate's identification is completed within 20 minutes and the stars identified: <ol style="list-style-type: none"> <li>1. Are the brightest available; and</li> <li>2. Have the greatest crossing angles possible between each other when plotted.</li> </ol>

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2.2.A GPS routing <i>Note 1</i> <i>Note 2</i>	Determine position and the accuracy of resultant position fix by any means	Voyage planning and navigation for all conditions by acceptable methods of plotting ocean tracks: Routing in accordance with the General Principles on Ship's Routing	On a ship underway, or a simulator, or in a navigation laboratory, using a GPS receiver which meets IMO standards, and given a port of departure and a port of arrival at least 2,000 nm apart in a generally east -west direction, with at least 3 legs, which include both rhumb line and great circle legs,	the candidate enters the waypoints and route for the voyage into the GPS.	The candidate's: <ol style="list-style-type: none"> <li>1. Way points are correctly determined, entered, and saved;</li> <li>2. Route is correctly entered and saved; and</li> <li>3. Great circle or rhumb line legs are correctly designated.</li> </ol>
3.1.A Amplitude of the sun <i>Note 1</i>	Determine and allow for compass errors	Ability to determine and allow for errors of the magnetic and gyro-compasses	On a ship underway, with the center of the sun on either the visible horizon or the celestial horizon,	the candidate takes a compass bearing of the sun.	The candidate: <ol style="list-style-type: none"> <li>1. Takes the bearing when the repeater is level and notes the:               <ol style="list-style-type: none"> <li>a. Time of the reading;</li> <li>b. Compass bearing (magnetic and/or gyrocompass);</li> <li>c. Determined true bearing of the sun (if the bearing of the sun was taken on the visible horizon, the Table 28 correction must be properly applied); and</li> <li>d. Compass error as determined by comparing the true bearing to the compass bearing; and</li> </ol> </li> <li>2. Calculates a solution that is within <math>\pm 1.0^\circ</math> of the assessor's solution.</li> </ol>

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3.1.B Apply compass error to magnetic course <i>Note 1</i>	Determine and allow for compass errors	Ability to determine and allow for errors of the magnetic and gyro-compasses	On a ship underway, a simulator, or in a navigational laboratory, given a deviation table, and a local chart,	the candidate correctly determines and applies the compass error to the course by magnetic compass.	The candidate: <ol style="list-style-type: none"> <li>1. Makes good intended true course by:               <ol style="list-style-type: none"> <li>a. Determining magnetic compass error; and</li> <li>b. Correctly applying the compass error to the magnetic course; and</li> </ol> </li> <li>2. Calculates a solution that is within <math>\pm 1.0^\circ</math> of the assessor's solution.</li> </ol>
3.1.C Variation and deviation <i>Note 1</i>	Determine and allow for compass errors	Ability to determine and allow for errors of the magnetic and gyro-compasses	On a ship, on a simulator, or in a navigational laboratory, and given a deviation table and a chart with a scale of no more than 1:150,000,	the candidate correctly applies the magnetic compass error to the magnetic bearings of at least two charted objects and plots them on the chart in use.	The candidate applies the magnetic compass error to the magnetic bearings and the resultant plotted positions are within $\pm 0.5$ nm of the assessor's solution.
3.1.D Gyro-compass error <i>Note 1</i>	Determine and allow for compass errors	Ability to determine and allow for errors of the magnetic and gyro-compasses	On a ship, or using a simulator, or in a navigational laboratory and given the gyro-compass error,	the candidate correctly applies the gyrocompass error to the gyrocompass course.	The candidate determines the intended true course within $\pm 1^\circ$ of the assessor's solution.

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3.2.A Write a standing order for compasses <i>Note 1</i>	Determine and allow for compass errors	Knowledge of the principles of magnetic and gyro-compasses	On a ship, or in a navigational laboratory, when asked to write a standing order regarding onboard compasses,	the candidate writes a standing order regarding the onboard compasses.	The candidate's standing order includes: <ol style="list-style-type: none"> <li>1. Frequent magnetic and gyro-compass comparison;</li> <li>2. Error determination is increased when near navigational hazards;</li> <li>3. Comparison of master gyro and slaves;</li> <li>4. Listing all slave compasses to be checked including the emergency steering stand) ; and</li> <li>5. Effect of magnetic objects near magnetic compass.</li> </ol>
3.3.A Operation and care of gyro-compass <i>Note 1</i>	Determine and allow for compass errors	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	On a ship, or in a navigational laboratory, when asked to write an instruction regarding onboard compasses,	the candidate writes an instruction for the watchstanding Mates regarding the onboard compasses.	The instruction includes: <ol style="list-style-type: none"> <li>1. Systems affected by a malfunction of the master gyro-compass;</li> <li>2. How a malfunction of the master gyrocompass manifests itself in each system;</li> <li>3. Location of instructions for starting the master gyrocompass and simulating the procedure;</li> <li>4. Location of instructions for shutting down the master gyrocompass and simulating the procedure;</li> <li>5. Procedures to follow in the event of a master gyrocompass malfunction;</li> <li>6. Procedures to follow in the event of a disconnect of system requiring input from the master gyrocompass; and</li> <li>7. Routine maintenance procedures including replacement of the sensitive element and any lubrication needed.</li> </ol>

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4.1.A Knowledge of IAMSAR procedures <i>Course Note 1</i>	Co-ordinate search and rescue operations	A thorough knowledge of and ability to apply the procedures in the International Aeronautical and Maritime Search and Rescue (IAMSAR) Manual	This KUP is demonstrated by successful completion of the approved or accepted <i>Search and Rescue</i> course specified in 46 CFR 11.305(a)(3)(v) or 46 CFR 11.307(a)(3)(v).		
4.1.B Coordinate search and rescue operations <i>Course Note 1</i>	Co-ordinate search and rescue operations	A thorough knowledge of and ability to apply the procedures in the International Aeronautical and Maritime Search and Rescue (IAMSAR) Manual	In an approved or accepted <i>Search and Rescue</i> course, when asked to apply the procedures contained in the International Aeronautical and Maritime Search and Rescue (IAMSAR) Manual,	the candidate plans for the coordination of a search and rescue.	The candidate: <ol style="list-style-type: none"> <li>1. Establishes communication methods and message texts to be used in search patterns in accordance with IAMSAR;</li> <li>2. Determines the most probable search area by calculating the: <ol style="list-style-type: none"> <li>a. Target probability area when the intended course of the target is known; and</li> <li>b. Set and drift of a life raft using a set and drift graph of approximate drift values;</li> </ol> </li> <li>3. Determines the appropriate search pattern as per the IAMSAR manual and plots on a chart of appropriate scale; and</li> <li>4. Simulates coordinating with at least one other vessel in the search pattern.</li> </ol>

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5.1.A Operate ARPA Controls and functions  <i>Course ARPA Note 1</i>	Maintain safe navigation through the use of information from navigation equipment and systems to assist command decision making	An appreciation of system errors and thorough understanding of the operational aspects of navigational systems  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	In an approved or accepted ARPA course, on an ARPA simulator that meets the standards of 33 CFR 164.38 and other applicable national and international performance standards,	the candidate operates the ARPA controls.	The candidate performs the tasks below using the correct controls to accomplish the task, and operating all controls required for each task within 2 seconds: <ol style="list-style-type: none"> <li>1. Set up and maintain the display;</li> <li>2. Manually acquire targets; set CPA/TCPA limits;</li> <li>3. Turn on past positions in all display modes;</li> <li>4. display true and relative vectors;</li> <li>5. Vary vector length;</li> <li>6. Designate a dangerous target;</li> <li>7. put ARPA display in true, north up relative motion, and head up;</li> <li>8. The trail maneuver mode with both a speed change and a course change;</li> <li>9. Obtain a range and bearing;</li> <li>10. Activate the lost target alarm;</li> <li>11. Silence the lost target alarm;</li> <li>12. Cancel a single target;</li> <li>13. Cancel all targets;</li> <li>14. Ground stabilize the display;</li> <li>15. Sea stabilize the display;</li> <li>16. Draw a navigation line;</li> <li>17. Set up an auto acquisition zone;</li> <li>18. Suppress auto acquisition in a certain area; and</li> <li>19. Turn auto acquisition off and on.</li> </ol>

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5.2.A Blind pilotage planning <i>Note 1</i>	Maintain safe navigation through the use of information from navigation equipment and systems to assist command decision making	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	On a ship, or in a navigational laboratory,	the candidate writes a standing order regarding navigation in restricted visibility identifying.	The candidate's standing order includes: <ol style="list-style-type: none"> <li>1. Conditions constituting restricted visibility;</li> <li>2. Informing the Master;</li> <li>3. Traffic considerations;</li> <li>4. Following the appropriate rules of the road;</li> <li>5. Safe speeds;</li> <li>6. Engine room alert level (SBE, etc);</li> <li>7. Appropriate signals being used;</li> <li>8. Posting of lookouts;</li> <li>9. Operation and use of RADAR and other electronic surveillance devices available; and</li> <li>10. Positioning of vessel in the seaway.</li> </ol>
5.3.A Plan and execute a passage <i>Note 1</i>	Maintain safe navigation through the use of information from navigation equipment and systems to assist command decision making	The interrelationship and optimum use of all navigational data available for conducting navigation	On a vessel underway or on a simulator, using a radar and/or ARPA, with multiple targets displayed on the 12-mile range scale, in congested coastal waters with reduced visibility, while transiting a traffic separation scheme, in the presence of current, and with a least one course change of not less than 30° in the route,	the candidate plans and executes a passage through the area of transit, using the principles of bridge resource management.	The candidate's plan and passage includes: <ol style="list-style-type: none"> <li>1. Assigning BRM roles;</li> <li>2. Monitoring the ship's progress;</li> <li>3. Communicating clearly and effectively;</li> <li>4. Controlling passage for safe navigation and collision avoidance; and,</li> <li>5. Ensuring that all team members use all relevant navigational data.</li> </ol>

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6.1.A ECDIS licensing and updating  <i>Course ECDIS Note 1</i>	Maintain the safety of navigation through the use of ECDIS and associated navigation systems to assist command decision making	Management of operational procedures, system files and data, including manage the procurement, licensing and updating of chart data and system software to conform to established procedures	In an approved or accepted ECDIS course, when asked to demonstrate the ability to manage the procurement, licensing and updating of chart data and system software,	the candidate operates the controls to accomplish the following tasks.	The candidate simulates the following: <ol style="list-style-type: none"> <li>1. Procuring the licensing to acquire and use electronic charts for an area not currently installed on the onboard ECDIS including the charts needed for the simulated route;</li> <li>2. Manually updating three charts;</li> <li>3. Using an automatic updating service;</li> <li>4. Updating system software according to manufacturers and subscription service instructions; and</li> <li>5. Extracting an installation history.</li> </ol> <b>NOTE:</b> The assessor may permit the candidate to procure licensing, update chart data and system software in lieu of simulating this process.
6.2.A Update ECDIS system version  <i>Course ECDIS Note 1</i>	Maintain the safety of navigation through use of ECDIS and associated navigation systems to assist command decision making	Management of operational procedures, system files and data, including system and information updating, including the ability to update ECDIS system version in accordance with vendor's product development	In an approved or accepted ECDIS course, when asked to demonstrate the ability to update ECDIS system version,	the candidate operates the controls to update the ECDIS programming.	The candidate simulates updating the ECDIS system version according to the manufacturer's instructions.  <b>NOTE:</b> The assessor may permit the candidate to procure licensing, update chart data and system software in lieu of simulating this process.

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6.3.A ECDIS system configure and backup  <i>Course ECDIS Note 1</i>	Maintain the safety of navigation through the use of ECDIS and associated navigation systems to assist command decision making	Management of operational procedures, system files and data, including create and maintain system configuration and backup files	In an approved or accepted ECDIS course, when asked to demonstrate the ability to create and maintain system configuration and backup files,	the candidate operates the controls to maintain system configuration and backup files.	The candidate simulates the following: <ol style="list-style-type: none"> <li>1. Creating a system configuration file as specified by the assessor;</li> <li>2. Creating a transit of a port to be visited by the ship and create a backup file of that transit; and</li> <li>3. Troubleshooting procedures for damaged initialization and configuration files.</li> </ol> <p><b>NOTE:</b> The assessor may permit the candidate to procure licensing, update chart data and system software in lieu of simulating this process.</p>
6.4.A Create and maintain ECDIS log files  <i>Course ECDIS Note 1</i>	Maintain the safety of navigation through the use of ECDIS and associated navigation systems to assist command decision making	Management of operational procedures, system files and data, including create and maintain log files in accordance with established procedures	In an approved or accepted ECDIS course, when asked to demonstrate the ability to create and maintain log files,	the candidate operates the controls to maintain log files.	The candidate simulates the following: <ol style="list-style-type: none"> <li>1. Locating and display the log file for the previous 24 hours;</li> <li>2. Performing a status check on all alarm functions;</li> <li>3. Identifying:               <ol style="list-style-type: none"> <li>a. Any manually triggered events;</li> <li>b. The charts that were used;</li> <li>c. Own ship track changes; and</li> <li>d. Change in chart data displayed.</li> </ol> </li> </ol> <p><b>NOTE:</b> The assessor may permit the candidate to procure licensing, update chart data and system software in lieu of simulating this process.</p>

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6.5.A Maintain ECDIS route plan files  <i>Course ECDIS Note 1</i>	Maintain the safety of navigation through the use of ECDIS and associated navigation systems to assist command decision making	Management of operational procedures, system files and data, including create and maintain route plan files in accordance with established procedures	In an approved or accepted ECDIS course, when asked to demonstrate the ability to create and maintain route plan files,	the candidate operates the controls to maintain route plan files.	The candidate simulates the following: <ol style="list-style-type: none"> <li>1. Creating a route plan of an area to be transited by the ship;</li> <li>2. Saving the route plan; and</li> <li>3. Accessing the route plan and making changes as per the assessor's instructions.</li> </ol> <p><b>NOTE:</b> The assessor may permit the candidate to procure licensing, update chart data and system software in lieu of simulating this process.</p>
6.6.A ECDIS functions and alarms  <i>Course ECDIS Note 1</i>	Maintain the safety of navigation through the use of ECDIS and associated navigation systems to assist command decision making	Management of operational procedures, system files and data, including use ECDIS log-book and track history functions for inspection of system functions, alarm settings and user responses	In an approved or accepted ECDIS course, when asked to demonstrate the ability to use ECDIS log-book and track history functions for inspection of system functions, alarm settings and user responses,	the candidate operates the controls to display system functions, alarms, and user responses.	The candidate simulates displaying the following: <ol style="list-style-type: none"> <li>1. System functions;</li> <li>2. Alarm settings; and</li> <li>3. User responses to system and navigational alarms.</li> </ol> <p><b>NOTE:</b> The assessor may permit the candidate to procure licensing, update chart data and system software in lieu of simulating this process.</p>

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6.7.A ECDIS playback and route planning  <i>Course ECDIS Note 1</i>	Maintain the safety of navigation through the use of ECDIS and associated navigation systems to assist command decision making	Use ECDIS playback functionality for passage review, route planning and review of system functions	In an approved or accepted ECDIS course, when asked to demonstrate the ability to use the playback function passage review, route planning and a review of system functions,	the candidate operates the controls to playback system functions.	The candidate simulates the following: <ol style="list-style-type: none"> <li>1. Notifying the assessor that the playback function will disrupt the normal operation of the ECDIS being used;</li> <li>2. Notifying the assessor that the route plan used cannot be displayed;</li> <li>3. Notifying the assessor that the chart data can only be deduced;</li> <li>4. Performing that playback of the logbook at a time and date specified by the assessor; and</li> <li>5. Noting:               <ol style="list-style-type: none"> <li>a. Alarms and responses;</li> <li>b. Chart data in use;</li> <li>c. Operational settings in use; and</li> <li>d. Update intervals and deducing heading and position.</li> </ol> </li> </ol> <p><b>NOTE:</b> The assessor may permit the candidate, under supervision, to procure licensing, update chart data and system software in lieu of simulating this process.</p>
7.1.A Forecast weather for next 24 hours  <i>Course Note 1</i>	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	In an approved or accepted <i>Advanced Meteorology</i> course, given synoptic surface and 500 mb weather charts for the previous 24-hour period, and temperature, pressure and wind readings for the previous 8 hours,	the candidate determines the weather to be encountered during the next 24-hour period.	The candidate's determinations of expected wind, sea, and weather conditions (e.g. types and amount of cloud cover, rain, and fog) are correct when compared with the movement of the systems and fronts during subsequent 24-hour period.

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7.2.A Identify fronts <i>Course Note 1</i>	Forecast weather and oceanographic conditions	Knowledge of characteristics of various weather systems, including tropical revolving storms and avoidance of storm centers and the dangerous quadrants	In an approved or accepted <i>Advanced Meteorology</i> course, when asked to describe the characteristics of tropical storms,	the candidate describes or selects the answer that describes the characteristics of tropical storms.	The candidate correctly describes tropical storms of differing magnitudes and actions to maintain the safety of navigation and minimize any risks to the vessel.
7.3.A Ocean currents <i>Course Note 1</i>	Forecast weather and oceanographic conditions	Knowledge of ocean current systems	In an approved or accepted <i>Advanced Meteorology</i> course, when asked to describe the anticipated effects of set and drift,	the candidate describes the anticipated effects of set and drift in regards to leeway, increased or decreased fuel consumption, voyage (or voyage leg) duration and potential traffic.	The candidate's description includes: <ol style="list-style-type: none"> <li>1. Long distance voyages where large current systems will affect the navigation and operation of the vessel; and</li> <li>2. Short distance voyages or voyage legs where small current systems will affect the navigation and operation of the vessel.</li> </ol>
7.4.A Calculate height of tide <i>Note 1</i>	Forecast weather and oceanographic conditions	Ability to calculate tidal conditions  Use all appropriate nautical publications on tides and currents	On a ship or in a laboratory, given a zone time at a subordinate location, and using an appropriate nautical publication,	the candidate correctly calculates the height of the tide.	The candidate's calculation is within $\pm 0.5$ feet of the assessor's solution.  <b>NOTE:</b> This assessment may be conducted with the use of a computer program.

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7.4.B Calculate tidal current <i>Note 1</i>	Forecast weather and oceanographic conditions	Ability to calculate tidal conditions  Use all appropriate nautical publications on tides and currents	On a ship or in a navigation laboratory, given a zone time at a subordinate location, and using an appropriate nautical publication,	the candidate correctly calculates the tidal current.	The candidate's calculation is within $\pm 0.5$ knots and $\pm 5$ degrees of the assessor's solution.  <b>NOTE:</b> This assessment may be conducted with the use of a computer program.
7.4.C Calculate time for desired height of tide <i>Note 1</i>	Forecast weather and oceanographic conditions	Ability to calculate tidal conditions  Use all appropriate nautical publications on tides and currents	On a ship or in a navigation laboratory, given a desired height of the tide at a subordinate location, and using an appropriate nautical publication,	the candidate correctly calculates the time period when the tidal rise creates a temporary situation where there is sufficient depth of water for the vessel to safely transit a given area where the chart datum indicates insufficient depth of water for the transit.	The candidate's calculation is within $\pm 5$ minutes of the assessor's solution.  <b>NOTE:</b> At the assessor's discretion, the candidate may calculate the time period when the tidal drop creates a temporary situation where there is insufficient depth of water for the vessel to safely transit a given area where the chart datum indicates sufficient depth of water for the transit.  This assessment may be conducted with the use of a computer program.

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8.1.A Beaching a ship <i>Course</i>	Respond to navigational emergencies	Precautions when beaching a ship	In an approved or accepted <i>Advanced Shiphandling</i> course, when asked to identify the precautions to be observed when beaching a ship,	the candidate describes or selects the answer that describes the precautions to be observed.	The candidate's description includes: <ol style="list-style-type: none"> <li>1. Ideal conditions, such as: <ol style="list-style-type: none"> <li>a. Weather</li> <li>b. Material of which the beach is made;</li> <li>c. Slope of the beach; and</li> <li>d. Trim of the vessel</li> </ol> </li> <li>2. Effects of weather and current after beaching; and</li> <li>3. Precautions to take after beaching such as: <ol style="list-style-type: none"> <li>a. Preparations to keep from being driven further ashore;</li> <li>b. Preparations for refloating;</li> <li>c. Damage assessment;</li> <li>d. Effects of ballast; and</li> <li>e. Soundings about ship.</li> </ol> </li> </ol>

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8.2.A Grounding a ship <i>Course</i>	Respond to navigational emergencies	Action to be taken if grounding is imminent, and after grounding	In an approved or accepted <i>Advanced Shiphandling</i> course, when asked to identify the precautions to be observed to minimize grounding damage,	the candidate describes, or selects the answer that describes the appropriate steps to minimize grounding damage.	The candidate's description includes: <ol style="list-style-type: none"> <li>1. All watertight doors be closed, the hull be checked, the bilges and tanks be sounded, and all spaces below the waterline be visually inspected where possible;</li> <li>2. The vessel be anchored in order to hold it until the grounding force is calculated and the float plan is complete;</li> <li>3. Ballast and fuel be transferred as necessary;</li> <li>4. The radio room or GMDSS station, satellite terminals, and other automatic distress transmitters of the ship's position be notified as necessary;</li> <li>5. Communications with the engine room be established and the sea suction be switched if necessary;</li> <li>6. Type of bottom on which the vessel grounded is determined; and</li> <li>7. The threat of oil pollution is determined.</li> </ol>

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8.3.A Refloating a grounded ship <i>Course</i>	Respond to navigational emergencies	Refloating a grounded ship with and without assistance	In an approved or accepted <i>Advanced Shiphandling</i> course, when asked to describe the precautions to be observed when refloating a grounded vessel, with and without assistance,	the candidate describes the appropriate steps to prepare for refloating a grounded vessel.	The candidate's description includes: 1. Depth of water around the vessel be determined; 2. Effects of tide and current be determined; 3. Time and height of the next high tide be determined; 4. Best placement of assist boats (if available) be determined; 5. Constant radio communications with assist boats be maintained; 6. Proper day and night signals be displayed; 7. Continuous update of weather forecasts be obtained; 8. Structural integrity of the hull be determined; 9. Ship's stability, stress, and grounding forces be determined; 10. Effect of de-ballasting or cargo removal; 11. Effectiveness of assist boats be determined; and 12. The crew remains away from towing lines before pulling starts.
8.4.A Prepare for a collision <i>Course</i>	Respond to navigational emergencies	Action to be taken if collision is imminent and following a collision or impairment of the watertight integrity of the hull by any cause	In an approved or accepted <i>Advanced Shiphandling</i> course, when asked to describe actions to prepare for a collision or on a simulator during a simulation of an imminent collision,	the candidate gives or describes the proper commands to prepare for a collision.	The commands described or given include: 1. All watertight doors be closed; 2. Broadcast of appropriate radio messages; 3. Sounding of danger, maneuvering, and ship's emergency signals, as required; 4. Engine room be alerted; and 5. Ship's crew takes the appropriate steps to lessen the force of impact.

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8.4.B Post collision actions <i>Course</i>	Respond to navigational emergencies	Action to be taken if collision is imminent and following a collision or impairment of the watertight integrity of the hull by any cause	In an approved or accepted <i>Advanced Shiphandling</i> course, when asked to describe actions to be taken after a collision or using a simulator during a simulation of the ship after a collision,	the candidate gives or describes the proper commands to maximize the safety of crew and vessel.	The commands given or described include: <ol style="list-style-type: none"> <li>1. Assessing damage and determining if vessel has lost watertight integrity;</li> <li>2. Determining the ship's stability and hull stresses;</li> <li>3. Checking for injuries to personnel;</li> <li>4. Taking steps to prevent the progressive flooding of spaces;</li> <li>5. Determining if threat of oil pollution exists;</li> <li>6. Maintaining communication with other vessel and rendering assistance if possible;</li> <li>7. Monitoring the weather;</li> <li>8. Maneuvering the vessel to minimize the effect of further damage; and</li> <li>9. Determining the damage stability condition and "danger angle" for launching survival craft before listing 15°.</li> </ol>
8.5.A Damage control	Respond to navigational emergencies	Assessment of damage control	On a ship of at least 200 GRT or 500 GT at sea or in a practical course of instruction, during a drill simulation of a vessel casualty resulting in structural damage,	the candidate correctly identifies the type and scale of the presented vessel casualty damage and promptly identifies and takes proper action to safely minimize the effects of the damage.	The candidate's actions ensure that: <ol style="list-style-type: none"> <li>1. Communications are effective and comply with established procedures; and</li> <li>2. Decisions and actions maximize safety of persons.</li> </ol>

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8.6.A Emergency steering	Respond to navigational emergencies	Emergency steering	On a ship of at least 200 GRT or 500 GT at sea, or in a practical course of instruction, during a drill simulation of the ship suffering a steering casualty that cannot be corrected by switching steering motors,	the candidate gives the proper commands to operate the emergency steering system.	The commands given by the candidate include: <ol style="list-style-type: none"> <li>1. Having crew man the aft steering room;</li> <li>2. Establishing communications with the steering engine room;</li> <li>3. Switching steering control from the bridge to the steering engine room; and</li> <li>4. Appropriate helm orders to be followed and courses to be steered.</li> </ol>
8.7.A Emergency towing	Respond to navigational emergencies	Emergency towing arrangements and towing procedure	When asked by a Qualified Assessor to describe emergency towing arrangements and towing procedures,	the candidate describes the proper decisions to be made and steps to be taken to prepare the vessel for emergency towing.	The commands described by the candidate include: <ol style="list-style-type: none"> <li>1. Preparing to receive a towing line; or</li> <li>2. Deploying the emergency towing gear; or</li> <li>3. Ordering that the anchor and chain be lowered to the water (or into the water as directed by the towing vessel) and: <ol style="list-style-type: none"> <li>a. Ensuring the chain will not pay out until the towing vessel requests additional chain; and</li> <li>b. Lowering a messenger to the water line in case it is needed.</li> </ol> </li> </ol>

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9.1.A Embark or disembark a pilot <i>Course</i>	Maneuver and handle a ship in all conditions	Maneuvering and handling a ship in all conditions, including maneuvers when approaching pilot stations and embarking or disembarking pilots, with due regard to weather, tide, head reach and stopping distances	In an approved or accepted <i>Advanced Shiphandling</i> course, in a ship simulator using the model of a ship of 10,000 GRT or more, when approaching a pilot station or in a simulator exercise approaching a pilot station, with other ships maneuvering to and from the station,	the candidate maneuvers the vessel for embarkation or disembarkation of a pilot.	The candidate: <ol style="list-style-type: none"> <li>1. Notifies the engine room of the time at which the vessel will begin maneuvering;</li> <li>2. Determines direction and force of wind and sea;</li> <li>3. Determines which side the pilot boat wishes to use;</li> <li>4. Determines the heading needed to make a lee;</li> <li>5. Approaches the pilot station after determining how the presence of other traffic maneuvering to or from the pilot station affects the vessel's safe approach;</li> <li>6. Maneuvers and slows the vessel to make a lee and allow the pilot boat to safely maintain a position at the pilot ladder; and</li> <li>7. Ensures that the pilot is aboard, and the pilot boat is away before resuming normal maneuvering.</li> </ol>
9.2.A Counter set and drift <i>Course</i>	Maneuver and handle a ship in all conditions	Maneuvering and handling a ship in all representative conditions, including handling ship in rivers, estuaries and restricted waters, having regard to the effects of current, wind and restricted water on helm response	In an approved or accepted <i>Advanced Shiphandling</i> course, in a ship simulator using the model of a ship of 10,000 GRT or more, in an exercise of at least 30 minutes, while transiting restricted waters,	the candidate pilots the vessel.	The candidate: <ol style="list-style-type: none"> <li>1. Determines the intended track of the vessel;</li> <li>2. Determines the force and direction of the wind and current;</li> <li>3. Sets courses to counter the effect of wind and current to maintain the ship on the intended track; and</li> <li>4. Uses the proper speed and rudder orders to maintain the ship on the intended track (in the deepest water) during turns around points and bends in the river.</li> </ol>

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9.3.A Constant radius turn <i>Course</i>	Maneuver and handle a ship in all conditions	Maneuvering and handling a ship in all conditions, including application of constant-rate-of-turn techniques	In an approved or accepted <i>Advanced Shiphandling</i> course, in a ship simulator using the model of a ship of 10,000 GRT or more, in an exercise with a turn of at least 50°,	the candidate completes the turn while maintaining a constant radius of turn throughout the maneuver.	The candidate: <ol style="list-style-type: none"> <li>Determines the radius of the turn; and</li> <li>Applies the correct amount of rudder to maintain the constant radius of turn with no more than two adjustments of less than 5° each.</li> </ol>
9.4.A Maneuver in shallow water <i>Course</i>	Maneuver and handle a ship in all conditions	Maneuvering and handling a ship in all conditions, including maneuvering in shallow water, including the reduction in under-keel clearance caused by squat, rolling and pitching	In an approved or accepted <i>Advanced Shiphandling</i> course, in a ship simulator using the model of a ship of 10,000 GRT or more,	the candidate sets the speed to prevent the vessel from touching bottom.	The candidate: <ol style="list-style-type: none"> <li>Determines the under keel clearance;</li> <li>Determines the maximum speed allowable to keep the vessel from squatting and touching bottom; and</li> <li>Sets the speed of the vessel to keep the ship on an even trim on straight courses and during turns.</li> </ol>
9.5.A Canal effect <i>Course</i>	Maneuver and handle a ship in all conditions	Maneuvering and handling a ship in representative conditions, including interaction between passing ships and between own ship and nearby banks (canal effect)	In an approved or accepted <i>Advanced Shiphandling</i> course, in a ship simulator using the math model of a ship of at least 10,000 GRT, while conning a deep draft vessel in a narrow channel, and meeting a vessel on the opposite course,	the candidate passes the other vessel close aboard.	The candidate: <ol style="list-style-type: none"> <li>Orders the rudder hard left before the bow waves of each vessel intersect;</li> <li>Shifts the rudder after the bows pass; and</li> </ol> When the sterns clear, shifts the rudder and then steadies on the original course.

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9.6.A Dock starboard side to <i>Course</i>	Maneuver and handle a ship in all conditions	Maneuvering and handling a ship in all conditions, including berthing and unberthing under various conditions of wind, tide and current with and without tugs  Use of propulsion and maneuvering systems	In an approved or accepted <i>Advanced Shiphandling</i> course, in a ship simulator using the model of a ship of 10,000 GRT or more, in clear visibility, with a wind speed of less than 15 knots and a current of less than 3 knots, on a single-screw vessel with a right-hand propeller,	the candidate demonstrates docking a vessel starboard side to a pier.	The candidate demonstrates docking a vessel starboard side to a pier under the supervision of the ship's Master. Actions taken include:  1. Planning: The candidate determines the: <ol style="list-style-type: none"> <li>a. Depth of water at the berth for the state of the tide;</li> <li>b. Strength and direction of the current for the route to the berth and at berth;</li> <li>c. Direction and speed of the wind; and</li> <li>d. Appropriate courses and maneuvers for the approach to the berth.</li> </ol> 2. Approaching: The candidate approaches the dock at the angle required by the wind and current, and at a speed that allows the vessel to maintain its heading and allows it to be stopped before allision.  3. Docking: The candidate: <ol style="list-style-type: none"> <li>a. Uses the engines and spring line, as necessary, to stop the ship or move it into final position;</li> <li>b. Properly runs out the mooring lines; and</li> <li>c. Takes in all slack lines until the vessel lies secure alongside.</li> </ol>

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9.6.B Dock port side to <i>Course</i>	Maneuver and handle a ship in all conditions	Maneuvering and handling a ship in all conditions, including berthing and unberthing under various conditions of wind, tide and current with and without tugs  Use of propulsion and maneuvering systems	In an approved or accepted <i>Advanced Shiphandling</i> course, in a ship simulator using the model of a ship of 10,000 GRT or more, in clear visibility, with a wind speed of less than 15 knots and a current of less than 3 knots, on a single-screw vessel with a right-hand propeller,	the candidate demonstrates docking a vessel port side to a pier.	The candidate demonstrates docking a vessel port side to a pier under the supervision of the ship's Master. Actions taken include:  1. Planning: The candidate determines: <ul style="list-style-type: none"> <li>a. Depth of water at the berth for the state of the tide;</li> <li>b. Strength and direction of the current for the route to the berth and at berth;</li> <li>c. Direction and speed of the wind; and</li> <li>d. Appropriate courses and maneuvers for the approach to the berth.</li> </ul> 2. Approaching: The candidate approaches the dock at the angle required by the wind and current, and at a speed that allows the vessel to maintain its heading and allows it to be stopped before allusion.  3. Docking: The candidate: <ul style="list-style-type: none"> <li>a. Uses the engines and spring line, as necessary, to stop the ship or move it into final position.</li> <li>b. Properly runs out the mooring lines; and</li> <li>c. Takes in all slack lines until the vessel lies secure alongside.</li> </ul>

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9.7.A Turn ship short around <i>Course</i>	Maneuver and handle a ship in all conditions	Maneuvering and handling a ship in all conditions, including ship and tug interaction  Use of propulsion and maneuvering systems	In an approved or accepted <i>Advanced Shiphandling</i> course, in a ship simulator using the model of a ship of 10,000 GRT or more, and using a tug forward and a tug aft,	the candidate turns the ship short around.	The candidate completes a 180° turn in two lengths of the ship.
9.8.A Anchor a ship	Maneuver and handle a ship in all conditions	Maneuvering and handling a ship in all conditions, including 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	At sea, on a ship of at least 3,000 GRT, or using a full mission ship simulator using the model of a ship of 10,000 GRT or more, in clear visibility, with a wind speed of less than 15 knots and a current of less than 3 knots,	the candidate demonstrates anchoring the vessel.	The candidate anchors the vessel as follows:  1. Planning: <ul style="list-style-type: none"> <li>a. Depth of water;</li> <li>b. Type of bottom;</li> <li>c. Wind and current;</li> <li>d. Bottom obstructions;</li> <li>e. Room to swing;</li> <li>f. Place to anchor;</li> <li>g. Courses and maneuvers to the anchor site;</li> <li>h. Desired final heading,</li> <li>i. Expected weather for the time at anchor; and</li> <li>j. Whether tug assistance will be required.</li> </ul> 2. Approach: The candidate: <ul style="list-style-type: none"> <li>a. Does not pass to windward or up-current of any anchored ship or hazard to navigation; or</li> <li>b. Determines that the ship has enough way to pass safely any such ships or hazards.</li> </ul> <p style="text-align: right;"><i>Continued on next page</i></p>

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9.8.A <i>Continued</i> Anchor a ship					<p><i>Continued from previous page</i></p> <p>3. Placement: The candidate:</p> <ul style="list-style-type: none"> <li>a. Approaches anchor site at a safe speed;</li> <li>b. Checks the ship's position using multiple sources;</li> <li>c. Ensures the ship's engines are used appropriately to stop the ship off the ground and then gain minimum sternway;</li> <li>d. Drops the anchor as the ship begins to gain sternway; and</li> <li>e. Slowly pays out a length of chain 5-7 times the water depth.</li> </ul> <p>3. Fetching up: The candidate allows the ship to fetch up on the chain, within the desired area and at the appropriate distance from other vessels.</p>
9.9.A Dragging anchor	Maneuver and handle a ship in all conditions	Maneuvering and handling a ship in all conditions, including dragging anchor; clearing fouled anchors	On a ship of at least 1,600 GRT or 3,000 GT, or using a ship simulator using the model of a ship of 10,000 GRT or more, with the vessel at anchor,	the candidate takes all precautions to determine if the vessel is dragging anchor.	The candidate takes the following steps: <ul style="list-style-type: none"> <li>1. Setting the GPS anchor watch function;</li> <li>2. Setting the VRM and EBL of the ARPA or radar on prominent fixed objects;</li> <li>3. Taking frequent visual bearings on fixed objects approximately 90° apart; and</li> <li>4. Constructing a swing circle on a chart.</li> </ul>

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Task No./Name	STCW Competence	Knowledge, Understanding, and Proficiency	Performance Condition	Performance Behavior	Performance Standard
9.9.B Clearing fouled anchor	Maneuver and handle a ship in all conditions	Maneuvering and handling a ship in all conditions, including dragging anchor; clearing fouled anchors	At sea, on a ship of at least 1,600 GRT or 3,000 GT or using a full mission ship simulator using the model of a ship of at least 10,000 GRT, with the vessel at anchor,	the candidate describes vessel procedures and maneuvers to clear a fouled anchor.	The candidate describes the procedures for the clearing a fouled anchor, including: <ol style="list-style-type: none"> <li>1. Informing the engine room;</li> <li>2. Clearing anchor fouled on an obstruction;</li> <li>3. Clearing heavily buried anchor;</li> <li>4. Clearing anchor winch malfunction; and</li> <li>5. Heavy strain on the anchor.</li> </ol>
9.10.A Drydocking <i>Course</i>	Maneuver and handle a ship in all conditions	Maneuvering and handling a ship in all conditions, including dry-docking, both with and without damage	In an approved or accepted <i>Advanced Stability</i> course, when given a drydocking plan, a ship's approved stability and trim book, and a list of stores, equipment, and weights and their locations aboard the ship,	the candidate determines the limiting draft, critical draft and the drafts forward, aft, and midships.	The candidate's determination includes: <ol style="list-style-type: none"> <li>1. Ensuring that the vessel will touch down on or lift off of the blocks evenly.</li> <li>2. Draft at which 0 GM will be reached;</li> <li>3. Location of the vessel, fore and aft, so that critical equipment is not covered and/or damaged including: <ol style="list-style-type: none"> <li>a. The damaged area;</li> <li>b. Fathometer transponders;</li> <li>c. Speed log transponders;</li> <li>d. Plugs;</li> <li>e. Sea suction; and</li> <li>f. Discharges.</li> </ol> </li> </ol>

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Task No./Name	STCW Competence	Knowledge, Understanding, and Proficiency	Performance Condition	Performance Behavior	Performance Standard
9.11.A Ship handling in heavy weather <i>Course</i>	Maneuver and handle a ship in all conditions	Maneuvering and handling a ship in all conditions, including: management and handling of ships in heavy weather means of keeping an unmanageable ship out of trough of the sea use of oil	In an approved or accepted <i>Advanced Shiphandling</i> course, when asked to describe shiphandling in heavy weather,	the candidate describes shiphandling under heavy weather conditions.	The candidate's determination includes: <ol style="list-style-type: none"> <li>1. Defining, listing the causes of, and suggesting methods to prevent their occurrence or minimize damage, as appropriate:               <ol style="list-style-type: none"> <li>a. Weather routing;</li> <li>b. Wavelength;</li> <li>c. Wave period;</li> <li>d. Period of encounter;</li> <li>e. Roll period;</li> <li>f. Synchronous rolling;</li> <li>g. Synchronous pitching;</li> <li>h. Panting;</li> <li>i. Slamming;</li> <li>j. Heavy pitching;</li> <li>k. Pooping; and</li> <li>l. Broaching;</li> </ol> </li> <li>2. Describing how to:               <ol style="list-style-type: none"> <li>a. Turn a ship in heavy seas;</li> <li>b. Detect heavy slamming on a large ship;</li> <li>c. Turn a disabled ship to avoid broaching or reduce drifting;</li> <li>d. Use oil to break seas;</li> <li>e. Avoid heavy longitudinal stresses when pitching; and</li> <li>f. Avoid racing the propeller; and</li> </ol> </li> <li>3. Describing the characteristics of ships in heavy weather, including:               <ol style="list-style-type: none"> <li>a. Speed of drift;</li> <li>b. Angle of drift; and</li> <li>c. When hove to with seas on the bow or quarter.</li> </ol> </li> </ol>

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Task No./Name	STCW Competence	Knowledge, Understanding, and Proficiency	Performance Condition	Performance Behavior	Performance Standard
9.11.B Assisting a ship or aircraft in distress  <i>Course Note 1</i>	Maneuver and handle a ship in all conditions	Maneuvering and handling a ship in all conditions, including: assisting a ship or aircraft in distress	In an approved or accepted <i>Advanced Shiphandling</i> course, when asked to describe the possible actions to be taken when assisting a ship or aircraft in distress,	the candidate describes or selects the answer that describes actions to be taken when assisting a ship or aircraft in distress.	The candidate's description includes: <ol style="list-style-type: none"> <li>1. Reporting systems, such as AMVER:               <ol style="list-style-type: none"> <li>a. Preparing departure, arrival, and daily reports;</li> <li>b. Actions to be taken when instructed to assist; and</li> <li>c. Actions to be taken to request assistance;</li> </ol> </li> <li>2. Emergency towing to prevent a ship from grounding on a lee shore by other than a salvage tug;</li> <li>3. Medical emergency communications;</li> <li>4. Contacting contracted doctors ashore;</li> <li>5. Medical assistance from nearby ships with doctors aboard;</li> <li>6. Taking aboard survivors of ship and aircraft casualties;</li> <li>7. Relaying sea and weather conditions to aircraft needing assistance; and</li> <li>8. Relaying navigational information to aircraft and ships needing assistance.</li> </ol>

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9.11.C Towing operations <i>Course Note 1</i>	Maneuver and handle a ship in all conditions	Maneuvering and handling a ship in all conditions, including: towing operations	In an approved or accepted <i>Advanced Shiphandling</i> course, when asked to describe onboard towing arrangements,	the candidate describes or selects the answer that describes onboard towing arrangements.	The candidate's description includes: <ol style="list-style-type: none"> <li>1. Required notifications, permissions required, and arrangements to:               <ol style="list-style-type: none"> <li>a. Vessel owners;</li> <li>b. Cargo owners;</li> <li>c. Charterers;</li> <li>d. Coastal states; and</li> <li>e. Flag states;</li> </ol> </li> <li>2. Preparations:               <ol style="list-style-type: none"> <li>a. Required emergency towing arrangements of tankers equal or greater than 20,000 DWT;</li> <li>b. Onboard vessel to be towed;</li> <li>c. Onboard vessel to do towing; and</li> <li>d. Communications between towed and towing vessels;</li> </ol> </li> <li>3. Procedures:               <ol style="list-style-type: none"> <li>a. Towing vessel's approach to disabled vessel;</li> <li>b. Passing messengers;</li> <li>c. Paying out towing cable;</li> <li>d. Securing towing wire to towing vessel;</li> <li>e. Securing towing wire to disabled vessel's anchor chain;</li> <li>f. Prevention of kinking and chafing;</li> <li>g. Taking on weight of tow;</li> <li>h. Determination of speed of tow;</li> <li>i. Emergency slipping of the tow; and</li> <li>j. Termination of tow at destination.</li> </ol> </li> </ol>

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Task No./Name	STCW Competence	Knowledge, Understanding, and Proficiency	Performance Condition	Performance Behavior	Performance Standard
9.12.A Maneuver to launch rescue boats  <i>Course Note 1</i>	Maneuver and handle a ship in all conditions	Maneuvering and handling a ship in all conditions, including precautions in maneuvering to launch rescue boats or survival craft in bad weather	In an approved or accepted <i>Advanced Shiphandling</i> course, when asked to describe the precautions in maneuvering to launch rescue boats or survival craft in bad weather,	the candidate describes or selects the answer that describes precautions in maneuvering to launch rescue boats or survival craft in bad weather.	The candidate's description includes: <ol style="list-style-type: none"> <li>1. Methods to provide a calm area for the launch of survival craft and rescue boat in adverse conditions, including:               <ol style="list-style-type: none"> <li>a. Creating a lee;</li> <li>b. Round turns to knock down adverse wave conditions; and</li> <li>c. Use of light oil;</li> </ol> </li> <li>2. Procedures for launching a rescue boat; and</li> <li>3. Limitations that may make the launching of rescue boats unduly hazardous to the ship's crew and/or the survivors such as:               <ol style="list-style-type: none"> <li>a. Sea height;</li> <li>b. Own ship's movements;</li> <li>c. Potential piracy;</li> <li>d. Limitations of equipment available; and</li> <li>e. Limitations of personnel available.</li> </ol> </li> </ol>
9.13.A Taking on survivors from rescue craft  <i>Course Note 1</i>	Maneuver and handle a ship in all conditions	Maneuvering and handling a ship in all conditions, including methods of taking on board survivors from rescue boats and survival craft	In an approved or accepted <i>Advanced Shiphandling</i> course, when asked to describe methods of taking on board survivors from rescue boats and survival craft,	the candidate describes or select the answer that best describes methods of taking on board survivors from rescue boats and survival craft.	The candidate's description includes: <ol style="list-style-type: none"> <li>1. Methods to provide a calm area for the recovery of survival craft and rescue boat in adverse conditions, and the procedures to bring survivors aboard from survival craft, including:               <ol style="list-style-type: none"> <li>a. Creating a lee;</li> <li>b. Round turns to knock down adverse wave conditions; and</li> <li>c. Use of light oil;</li> </ol> </li> </ol> <p style="text-align: right;"><i>Continued on next page</i></p>

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Task No./Name	STCW Competence	Knowledge, Understanding, and Proficiency	Performance Condition	Performance Behavior	Performance Standard
9.13.A <i>Continued</i>  Taking on survivors from rescue craft  <i>Course Note 1</i>					<p style="text-align: center;"><i>Continued from previous page</i></p> <ol style="list-style-type: none"> <li>2. Limitations that may make the launching of rescue boats unduly hazardous to the ship's crew and/or the survivors such as:               <ol style="list-style-type: none"> <li>a. Sea height;</li> <li>b. Own ship's movements;</li> <li>c. Potential piracy;</li> <li>d. Limitations of equipment available;</li> <li>e. Limitations of personnel available;</li> <li>f. Use of gangways, cargo nets, and other rescue devices available; and</li> <li>g. Concerns about contents of baggage being brought aboard;</li> </ol> </li> <li>3. Care of survivors including:               <ol style="list-style-type: none"> <li>a. Hypothermia;</li> <li>b. Dehydration;</li> <li>c. Exposure to sun, salt, water for extended periods;</li> <li>d. Starvation;</li> <li>e. First Aid; and</li> <li>f. Preparations for disembarkation</li> </ol> </li> <li>4. Reporting procedures, including:               <ol style="list-style-type: none"> <li>a. Notifications to company;</li> <li>b. Notifications to regulatory agencies;</li> <li>c. Nav alerts about drifting vessels and other possible survivors; and</li> <li>d. Preparations and submission of reports.</li> </ol> </li> </ol>

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Task No./Name	STCW Competence	Knowledge, Understanding, and Proficiency	Performance Condition	Performance Behavior	Performance Standard
9.14.A Maneuvering and propulsion characteristics  <i>Course Note 1</i>	Maneuver and handle a ship in all conditions	Maneuvering and handling a ship in all conditions, including ability to determine the maneuvering and propulsion characteristics of common types of ships, with special reference to stopping distances and turning circles at various draughts and speeds	In an approved or accepted <i>Advanced Shiphandling</i> course, when asked to describe the maneuvering and propulsion characteristics of common types of ships,	the candidate describes or selects the answer that describes the maneuvering and propulsion characteristics of common types of ships.	The candidate's description includes the maneuvering and propulsion characteristics of: <ol style="list-style-type: none"> <li>1. Ship propulsion systems, such as:               <ol style="list-style-type: none"> <li>a. Slow-speed diesels;</li> <li>b. Medium-speed diesels;</li> <li>c. High-speed diesels; and</li> <li>d. Steam turbines;</li> </ol> </li> <li>2. Ship types, such as:               <ol style="list-style-type: none"> <li>a. coastwise tankers;</li> <li>b. VLCCs;</li> <li>c. ULCCs;</li> <li>d. LNG Carriers;</li> <li>e. Container ships;</li> <li>f. Passenger ships;</li> <li>g. Tugs; and</li> <li>h. Fishing vessels.</li> </ol> </li> </ol>

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Task No./Name	STCW Competence	Knowledge, Understanding, and Proficiency	Performance Condition	Performance Behavior	Performance Standard
9.15.A Reducing wake damage  <i>Course Note 1</i>	Maneuver and handle a ship in all conditions	Maneuvering and handling a ship in all conditions, including importance of navigating at reduced speed to avoid damage caused by own ship's bow wave and stern wave	In an approved or accepted <i>Advanced Shiphandling</i> course, when asked to describe the importance of navigating at reduced speed to avoid damage caused by own bow and stern waves,	the candidate describes or selects the answer that describes the importance of navigating at reduced speed.	The candidate's description includes: <ol style="list-style-type: none"> <li>1. Generation of bow and stern waves;</li> <li>2. Effects that bow and stern waves have on:               <ol style="list-style-type: none"> <li>a. The open ocean;</li> <li>b. Man-made structures such as piers and breakwaters that are close to or in the water;</li> <li>c. Banks, mud flats, and other geologic structures;</li> <li>d. People onshore or in the water;</li> <li>e. Vessels moored alongside piers; and</li> <li>f. Vessels at anchor or moving in a channel or seaway;</li> </ol> </li> <li>3. How to moderate bow and stern waves to minimize or eliminate injury or damage; and</li> <li>4. Precautions to take to eliminate or minimize damage to the candidate's ship, at anchor or tied up alongside to a pier or jetty from another vessel's bow or stern wave.</li> </ol>

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Task No./Name	STCW Competence	Knowledge, Understanding, and Proficiency	Performance Condition	Performance Behavior	Performance Standard
9.16.A Ice navigation <i>Note 1</i>	Maneuver and handle a ship in all conditions	Maneuvering and handling a ship in all conditions, including practical measures to be taken when navigating in or near ice	When asked by a Qualified Assessor to describe the practical measures to be taken when navigating in or near ice,	the candidate describes appropriate ice navigation procedures.	The candidate's description includes: <ol style="list-style-type: none"> <li>1. Where to obtain information about ice on or in the vicinity of the intended track, such as:               <ol style="list-style-type: none"> <li>a. Daily bulletins of the International Ice Patrol in the North Atlantic;</li> <li>b. Ice warnings from countries where ice is a regular problem;</li> <li>c. Hydrographic Office ice charts;</li> <li>d. Pilot books;</li> <li>e. Facsimile ice charts;</li> <li>f. Warnings from other ships in the vicinity; and</li> <li>g. Warning signs that ice may be near;</li> </ol> </li> <li>2. Defining the following terms:               <ol style="list-style-type: none"> <li>a. <i>Solid ice</i>;</li> <li>b. <i>Soft ice</i>;</li> <li>c. <i>Drift ice</i>;</li> <li>d. <i>Pack ice</i>;</li> <li>e. <i>Growler</i>;</li> <li>f. <i>Iceberg</i>;</li> <li>g. <i>Lead</i>;</li> <li>h. <i>Snow blink</i>;</li> <li>i. <i>Ice blink</i>;</li> <li>j. <i>Land sky</i>; and</li> <li>k. <i>Water sky</i>;</li> </ol> </li> </ol> <p style="text-align: right;"><i>Continued on next page</i></p>

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Task No./Name	STCW Competence	Knowledge, Understanding, and Proficiency	Performance Condition	Performance Behavior	Performance Standard
9.16.A <i>Continued</i> Ice navigation <i>Note 1</i>					<p style="text-align: center;"><i>Continued from previous page</i></p> <ol style="list-style-type: none"> <li>3. Precautions to follow when navigating near ice:               <ol style="list-style-type: none"> <li>a. Proceeding at a moderate speed;</li> <li>b. Altering course to avoid area with known ice;</li> <li>c. Radar contact with ice may be unreliable;</li> <li>d. Navigation marks may have been removed;</li> <li>e. Navigation marks may have been moved or sunk due to drifting ice; and</li> <li>f. Maintaining a lookout when hove to locate drifting ice;</li> </ol> </li> <li>4. Precautions when navigating in thick ice:               <ol style="list-style-type: none"> <li>a. Requesting icebreaker services and the procedure to request this service,</li> <li>b. Only entering thick ice in ships with hulls that have been strengthened for this purpose;</li> <li>c. Estimating the thickness of the ice;</li> <li>d. Avoiding pressure areas as indicated by hummocks and rafting;</li> <li>e. Following leads, especially those which have been successfully used by other ships;</li> <li>f. Entering the ice at right angles and on the lee side of the ice, if possible;</li> <li>g. Approaching at as slow a speed as possible and increasing power as needed after contacting ice;</li> <li>h. Avoiding damage to the rudder and propeller;</li> <li>i. Preventing soft ice from clogging intakes;</li> <li>j. Preventing freezing up of tail shafts, deck machinery, and services;</li> <li>k. Using fenders when turning in a lead;</li> <li>l. Using radar on short ranges to see leads; and</li> <li>m. Heaving to in an ice field.</li> </ol> </li> </ol>

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Task No./Name	STCW Competence	Knowledge, Understanding, and Proficiency	Performance Condition	Performance Behavior	Performance Standard
9.16.B Ice accumulation <i>Note 1</i>	Maneuver and handle a ship in all conditions	Maneuvering and handling a ship in all conditions, including practical measures to be taken when in conditions of ice accumulation on board	When asked by a Qualified Assessor to describe the practical measures to be taken when in conditions of ice accumulation on board,	the candidate describes appropriate procedures.	The candidate's description includes: <ol style="list-style-type: none"> <li>1. Master's obligation to report conditions that are causing severe ice accumulations;</li> <li>2. Danger of reduced stability;</li> <li>3. Other dangers of ice accumulation, including:               <ol style="list-style-type: none"> <li>a. Slipping hazards</li> <li>b. Falling ice; and</li> <li>c. Hypothermia.</li> </ol> </li> <li>4. Damage to exposed surfaces and equipment conditions that cause ice accumulation to the ship's topside, superstructure, and rigging;</li> <li>5. Precautions to be followed, including:               <ol style="list-style-type: none"> <li>a. Limit the accumulation;</li> <li>b. Reduce or remove the accumulation; and</li> <li>c. The urgency of removing or reducing the accumulation.</li> </ol> </li> </ol>

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Task No./Name	STCW Competence	Knowledge, Understanding, and Proficiency	Performance Condition	Performance Behavior	Performance Standard
9.17.A Maneuver in traffic separation schemes <i>Note 1</i>	Maneuver and handle a ship in all conditions	Maneuvering and handling a ship in all conditions, including use of, and maneuvering in and near, traffic separation schemes and in vessel traffic service (VTS) areas	When asked by a Qualified Assessor to describe the use of, and maneuvering in and near, traffic separation schemes and in vessel traffic service (VTS) areas,	the candidate describes procedures for operating in VTS areas.	The candidate's description includes: <ol style="list-style-type: none"> <li>1. Expected behavior of ships entering, transiting, and exiting a traffic separation scheme by quoting Rule 10 of the current COLREGS;</li> <li>2. Relevance of the remaining Rules of the Road when transiting a traffic separation scheme; and</li> <li>3. Reporting requirements of a Vessel Traffic System (VTS) including:               <ol style="list-style-type: none"> <li>a. Information required to be initially reported;</li> <li>b. Location and/or times where the reports must be made; and</li> <li>c. Information that must be reported when exiting the VTS.</li> </ol> </li> </ol>
10.1.A Diesel engines <i>Note 1</i>	Operate remote controls of propulsion plant and engineering systems and services	Operating principles of marine power plants	When asked by a Qualified Assessor to describe the operating principles of diesel engines,	the candidate describes diesel engine operation.	The candidate's description includes the general properties of diesel engines, in generally accepted engineering terms, including: <ol style="list-style-type: none"> <li>1. General diesel engines operating properties;</li> <li>2. Two and four-stroke diesel cycles;</li> <li>3. Slow-speed diesel engines; and</li> <li>4. Medium-speed diesels.</li> </ol>

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Task No./Name	STCW Competence	Knowledge, Understanding, and Proficiency	Performance Condition	Performance Behavior	Performance Standard
10.1.B Steam turbine systems	Operate remote controls of propulsion plant and engineering systems and services	Operating principles of marine power plants	When asked by a Qualified Assessor to describe the operating principles of steam turbine systems,	the candidate describes the operation of steam turbine systems.	<p>The candidate's description includes the general properties of steam engines, in generally accepted engineering terms, including:</p> <ol style="list-style-type: none"> <li>1. The turbine, including: <ol style="list-style-type: none"> <li>a. Preparing to get underway; and</li> <li>b. Maneuvering;</li> </ol> </li> <li>2. The boiler, including: <ol style="list-style-type: none"> <li>a. Water tubes, vs. fire tube construction;</li> <li>b. Raising steam;</li> <li>c. Purpose of boiler mountings;</li> <li>d. Fuel-oil supply system;</li> <li>e. Boiler-water testing; and</li> <li>f. Carry-over, both its cause and possible damaging effects;</li> </ol> </li> <li>3. Reduction gearing; and</li> <li>4. Feed-water systems, including: <ol style="list-style-type: none"> <li>a. Open feed-water systems; and</li> <li>b. Closed feed-water systems.</li> </ol> </li> </ol>

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Task No./Name	STCW Competence	Knowledge, Understanding, and Proficiency	Performance Condition	Performance Behavior	Performance Standard
10.1.C Propeller and propeller shaft <i>Note 1</i>	Operate remote controls of propulsion plant and engineering systems and services	Operating principles of marine power plants	When asked by a Qualified Assessor to describe the operating principles of propellers and propeller shafts,	the candidate describes operating principles of propellers and propeller shafts.	The candidate's description includes: <ol style="list-style-type: none"> <li>1. Propellers and propeller shafts:               <ol style="list-style-type: none"> <li>a. Parts of a propeller;</li> <li>b. Attachment to propeller shaft;</li> <li>c. Pitch;</li> <li>d. Slip;</li> <li>e. Efficiency; and</li> <li>f. RPM vs. ship's speed;</li> </ol> </li> <li>2. Variable-pitch propellers:               <ol style="list-style-type: none"> <li>a. Parts of a propeller;</li> <li>b. attachment to propeller shaft;</li> <li>c. Pitch;</li> <li>d. Slip;</li> <li>e. Efficiency;</li> <li>f. RPM vs. ships speed; and</li> <li>g. Precautions when:                   <ul style="list-style-type: none"> <li>• Starting engines;</li> <li>• Going to sea;</li> <li>• Entering harbors and confined waters;</li> <li>• Changing control positions; and</li> <li>• Emergency control of revolutions and pitch;</li> </ul> </li> </ol> </li> </ol> <p style="text-align: right;"><i>Continued on next page</i></p>

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Task No./Name	STCW Competence	Knowledge, Understanding, and Proficiency	Performance Condition	Performance Behavior	Performance Standard
10.1.C <i>Continued</i> Propeller and propeller shaft <i>Note 1</i>					<i>Continued from previous page</i> 3. Calculating the following: a. Slip; and b. Ship's speed given RPM, slip, and pitch; 4. Propeller shaft, including: a. Segmented arrangement including thrust shaft, intermediate shafts, and tail shaft; b. Supporting arrangement; c. Transmission of propeller thrust to hull; d. Transmission of rotational energy to propeller; and e. Stern tube bearing.
10.1.D Bridge control <i>Note 1</i>	Operate remote controls of propulsion plant and engineering systems and services	Operating principles of marine power plants	When asked by a Qualified Assessor to describe the operating principles of bridge control,	the candidate describes operating principles of bridge control.	The candidate's description includes the properties of bridge control, in generally accepted engineering terms: 1. Control of the main engine from: a. The bridge; b. Machinery space; c. Local control; and d. Change-over of control station procedures; 2. Control of variable-pitch propellers; 3. Control-system indicators and alarms: a. In the engine-room; b. On the bridge; and c. Locally; and 4. Bow and stern thrusters: a. Operations; b. Indicators and alarms; c. Bridge control; and d. Local control.

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<b>Task No./Name</b>	<b>STCW Competence</b>	<b>Knowledge, Understanding, and Proficiency</b>	<b>Performance Condition</b>	<b>Performance Behavior</b>	<b>Performance Standard</b>
10.2.A Waste heat boilers	Operate remote controls of propulsion plant and engineering systems and services	Ships' auxiliary machinery	When asked by a Qualified Assessor to describe the operating principles of waste heat boilers,	the candidate describes operating principles of waste heat boilers.	The candidate's description includes: <ol style="list-style-type: none"> <li>1. Their uses;</li> <li>2. Concerns about their use;</li> <li>3. Limitations;</li> <li>4. Exhaust-heat heat exchangers; and</li> <li>5. Steam-to-steam generators.</li> </ol>
10.2.B Distillation and fresh water systems	Operate remote controls of propulsion plant and engineering systems and services	Ships' auxiliary machinery	When asked by a Qualified Assessor to describe the operating principles of distillation and freshwater systems,	the candidate describes operating principles of distillation and freshwater systems.	The candidate's description includes: <ol style="list-style-type: none"> <li>1. Systems requiring distilled or freshwater;</li> <li>2. Equipment used to distill water, including: <ol style="list-style-type: none"> <li>a. Flash evaporators; and</li> <li>b. Reverse osmosis;</li> </ol> </li> <li>3. Treatment of freshwater for drinking; and</li> <li>4. Ship's domestic-water system.</li> </ol>

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Task No./Name	STCW Competence	Knowledge, Understanding, and Proficiency	Performance Condition	Performance Behavior	Performance Standard
10.2.C Pumps and pumping systems <i>Note 1</i>	Operate remote controls of propulsion plant and engineering systems and services	Ships' auxiliary machinery	When asked by a Qualified Assessor to describe the operating principles of pumps and pumping systems,	the candidate describes operating principles of pumps and pumping systems.	The candidate's description includes different pumps and their applications and characteristics: <ol style="list-style-type: none"> <li>1. Positive-displacement pumps, including:               <ol style="list-style-type: none"> <li>a. Reciprocating pumps;</li> <li>b. Rotary positive-displacement pumps; and</li> <li>c. Screw pumps;</li> </ol> </li> <li>2. Axial flow pumps;</li> <li>3. Centrifugal pumps; and</li> <li>4. Head, including:               <ol style="list-style-type: none"> <li>a. Defining head;</li> <li>b. Defining suction head and its significance;</li> <li>c. Defining discharge head and its significance; and</li> <li>d. Head losses and their significance;</li> </ol> </li> <li>5. Bilge and ballast systems; and</li> <li>6. Cross connections such as the engine room emergency bilge system and the main circulating pump.</li> </ol>

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Task No./Name	STCW Competence	Knowledge, Understanding, and Proficiency	Performance Condition	Performance Behavior	Performance Standard
10.2.D Steering gear <i>Note 1</i>	Operate remote controls of propulsion plant and engineering systems and services	Ships' auxiliary machinery	When asked by a Qualified Assessor to describe the operating principles of steering gear,	the candidate describes operating principles of steering gear.	The candidate's description includes: <ol style="list-style-type: none"> <li>1. Variable delivery hydraulic pumps;</li> <li>2. The general design and operation of hydraulic ram-type steering gear:               <ol style="list-style-type: none"> <li>a. Auxiliary steering;</li> <li>b. Power supplies; and</li> <li>c. Emergency control;</li> </ol> </li> <li>3. The general design and operation of rotary-vane type steering gear, including redundancy for backup steering;</li> <li>4. Control systems including:               <ol style="list-style-type: none"> <li>a. Auxiliary steering;</li> <li>b. Power supplies; and</li> <li>c. Emergency control;</li> </ol> </li> <li>5. Local operation; and</li> <li>6. Testing steering gear:               <ol style="list-style-type: none"> <li>a. Before sailing; and</li> <li>b. During drills.</li> </ol> </li> </ol>
10.2.E Remotely operate steering gear	Operate remote controls of propulsion plant and engineering systems and services	Ships' auxiliary machinery	At sea, on a vessel of at least 1,600 GRT,	the candidate demonstrates the ability to remotely operate steering gear.	The demonstration includes remote start-up and shut-down procedures, switching over, response to alarms, and adherence to manufacturer's operating manual.

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Task No./Name	STCW Competence	Knowledge, Understanding, and Proficiency	Performance Condition	Performance Behavior	Performance Standard
10.2.F Generators, alternators, and electrical distribution <i>Note 1</i>	Operate remote controls of propulsion plant and engineering systems and services	Ships' auxiliary machinery	When asked by a Qualified Assessor to describe the operating principles of generators, alternators, and electrical distribution,	the candidate describes operating principles of generators, alternators, and electrical distribution.	The candidate's description includes: <ol style="list-style-type: none"> <li>1. Direct-current (D.C.) systems, including:               <ol style="list-style-type: none"> <li>a. Advantages and disadvantages of D.C. power;</li> <li>b. Operation of a D.C. generator;</li> <li>c. Purpose and use of inverters;</li> <li>d. Functioning of D.C. motors; and</li> <li>e. D.C. distribution systems;</li> </ol> </li> <li>2. Alternating current (A.C.) systems, including:               <ol style="list-style-type: none"> <li>a. Advantages and disadvantages of A.C. power;</li> <li>b. Operation of an A.C. generator and alternator;</li> <li>c. Purpose and use of rectifiers;</li> <li>d. Functioning of induction motors; and</li> <li>e. A.C. distribution systems;</li> </ol> </li> <li>3. Safety precautions, including:               <ol style="list-style-type: none"> <li>a. Circuit breakers and fuses; and</li> <li>b. Lockout/tag-out procedures;</li> </ol> </li> <li>4. Batteries, including:               <ol style="list-style-type: none"> <li>a. Characteristics of lead-acid batteries;</li> <li>b. Characteristics of alkaline batteries;</li> <li>c. Safety precautions; and</li> <li>d. Battery maintenance;</li> </ol> </li> </ol> <p style="text-align: right;"><i>Continued on next page</i></p>

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Task No./Name	STCW Competence	Knowledge, Understanding, and Proficiency	Performance Condition	Performance Behavior	Performance Standard
10.2.F <i>Continued</i> Generators, alternators, and electrical distribution <i>Note 1</i>					<i>Continued from previous page</i> 5. Emergency generators, including: <ol style="list-style-type: none"> <li>a. Starting requirements;</li> <li>b. Services supplied; and</li> <li>c. Emergency lighting; and</li> </ol> 6. Reading a navigational-light circuit showing: <ol style="list-style-type: none"> <li>a. Indicators;</li> <li>b. Navigation light;</li> <li>c. Power supply;</li> <li>d. Switches; and</li> <li>e. An alternative power supply.</li> </ol>
10.2.G Air conditioning and ventilation <i>Note 1</i>	Operate remote controls of propulsion plant and engineering systems and services	Ships' auxiliary machinery	When asked by a Qualified Assessor to describe the operating principles of air conditioning and ventilation,	the candidate describes operating principles of air conditioning and ventilation.	The candidate's description includes: <ol style="list-style-type: none"> <li>1. Refrigeration systems, including:               <ol style="list-style-type: none"> <li>a. Vapor-compression cycle;</li> <li>b. Desirable properties of refrigerants;</li> <li>c. Commonly used refrigerants;</li> <li>d. Use of secondary refrigerants; and</li> <li>e. Performance coefficients; and</li> </ol> </li> <li>2. Ventilation systems, including:               <ol style="list-style-type: none"> <li>a. Accommodation ventilation;</li> <li>b. Cargo-hold ventilation; and</li> <li>c. Shipboard air-conditioning systems.</li> </ol> </li> </ol>

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Task No./Name	STCW Competence	Knowledge, Understanding, and Proficiency	Performance Condition	Performance Behavior	Performance Standard
10.2.H Sewage treatment plants <i>Note 1</i>	Operate remote controls of propulsion plant and engineering systems and services	Ships' auxiliary machinery	When asked by a Qualified Assessor to describe the operating principles of sewage treatment plants,	the candidate describes operating principles of sewage treatment plants.	The candidate's description includes: <ol style="list-style-type: none"> <li>1. U. S. regulations and International Conventions:               <ol style="list-style-type: none"> <li>a. MARPOL Annex IV;</li> <li>b. Federal Water Pollution Control Act;</li> <li>c. 33 CFR 159; and</li> <li>d. Applicable U. S. Coast Guard policy</li> </ol> </li> <li>2. Operation of a chemical-sewage treatment plant; and</li> <li>3. Operation of a biological-sewage treatment plant.</li> </ol>
10.2.I Oily water separators and oil filtering equipment <i>Note 1</i>	Operate remote controls of propulsion plant and engineering systems and services	Ships' auxiliary machinery	When asked by a Qualified Assessor to describe the operating principles of oily-water separators and oil filtering equipment,	the candidate describes operating principles of oily-water separators and oil filtering equipment.	The candidate's description includes: <ol style="list-style-type: none"> <li>1. U. S. regulations and International Conventions:               <ol style="list-style-type: none"> <li>a. MARPOL Annex I;</li> <li>b. OPA 90; and</li> <li>c. 46 CFR 162; and</li> </ol> </li> <li>2. Construction, operation, and limitations of:               <ol style="list-style-type: none"> <li>a. Oily-water separators;</li> <li>b. Oil filtering equipment;</li> <li>c. Metering equipment; and</li> <li>d. Monitoring and control.</li> </ol> </li> </ol>

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Task No./Name	STCW Competence	Knowledge, Understanding, and Proficiency	Performance Condition	Performance Behavior	Performance Standard
10.2.J Deck machinery <i>Note 1</i>	Operate remote controls of propulsion plant and engineering systems and services	Ships' auxiliary machinery	When asked by a Qualified Assessor to describe the operating principles of deck machinery,	the candidate describes operating principles of deck machinery.	The candidate's description includes: <ol style="list-style-type: none"> <li>1. Anchor windlasses, including:               <ol style="list-style-type: none"> <li>a. Gearing;</li> <li>b. Redundant arrangements; and</li> <li>c. Vertical capstans;</li> </ol> </li> <li>2. Mooring winches, including:               <ol style="list-style-type: none"> <li>a. Spooling devices;</li> <li>b. Self tensioning; and</li> <li>c. Advantages and disadvantages of different drive systems;</li> </ol> </li> <li>3. Cargo winches, including slewing deck cranes; and</li> <li>4. Lubrication of deck machinery.</li> </ol>
10.2.K Hydraulic systems <i>Note 1</i>	Operate remote controls of propulsion plant and engineering systems and services	Ships' auxiliary machinery	When asked by a Qualified Assessor to describe the operating principles of hydraulic systems,	the candidate describes operating principles of hydraulic systems.	The candidate's description includes: <ol style="list-style-type: none"> <li>1. The parts of a hydraulic system, including:               <ol style="list-style-type: none"> <li>a. Oil tank;</li> <li>b. Pumps;</li> <li>c. Control valves;</li> <li>d. Hydraulic motors;</li> <li>e. Pipework;</li> <li>f. Open and closed systems;</li> <li>g. Live-line circuits;</li> <li>h. Ram and rotary vane actuators; and</li> <li>i. hydraulic accumulators;</li> </ol> </li> <li>2. Hydraulic fluid heating and cooling;</li> <li>3. Cleanliness of the hydraulic fluid; and</li> <li>4. Effects of air in the hydraulic system.</li> </ol>

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Task No./Name	STCW Competence	Knowledge, Understanding, and Proficiency	Performance Condition	Performance Behavior	Performance Standard
10.3.A Engineering terms <i>Note 1</i>	Operate remote controls of propulsion plant and engineering systems and services	General knowledge of marine engineering terms	When asked by a Qualified Assessor to define engineering terms,	the candidate defines the specified terms.	The candidate correctly defines: <ol style="list-style-type: none"> <li>1. <i>Mass</i>;</li> <li>2. <i>Force</i>;</li> <li>3. <i>Work</i>;</li> <li>4. <i>Power</i>;</li> <li>5. <i>Energy</i>;</li> <li>6. <i>Pressure</i>;</li> <li>7. <i>Stress</i>;</li> <li>8. <i>Strain</i>;</li> <li>9. <i>Heat</i>;</li> <li>10. <i>Efficiency of a machine</i>;</li> <li>11. <i>Indicated power</i>;</li> <li>12. <i>Shaft power</i>;</li> <li>13. <i>Thrust</i>; and</li> <li>14. <i>Admiralty coefficient</i>.</li> </ol>
10.3.B Fuel consumption <i>Note 1</i>	Operate remote controls of propulsion plant and engineering systems and services	General knowledge of marine engineering terms	When asked by a Qualified Assessor to describe factors affecting fuel consumption,	the candidate describes factors affecting fuel consumption.	The candidate's description includes defining fuel consumption as a function of: <ol style="list-style-type: none"> <li>1. Displacement;</li> <li>2. Distance;</li> <li>3. Speed;</li> <li>4. Sea state;</li> <li>5. Hull condition;</li> <li>6. Propeller condition;</li> <li>7. Calculating daily consumption at service speed;</li> <li>8. Fuel required for a voyage; and</li> <li>9. Speed for a specific consumption on a daily and voyage consumption basis.</li> </ol>

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Task No./Name	STCW Competence	Knowledge, Understanding, and Proficiency	Performance Condition	Performance Behavior	Performance Standard
11.1.A International regulations for cargo operations	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	When asked by a Qualified Assessor to describe international regulations, codes and standards for the safe handling, stowage, securing and transport of cargoes,	the candidate describes international regulations, codes and standards applicable to vessels of 1,600 GRT /3,000 GT or more.	The candidate's description includes the general obligations of the ship owner and the ship's Master, regarding the carriage of goods by sea, including: <ol style="list-style-type: none"> <li>1. The Harter Act of 1893;</li> <li>2. The Carriage of Goods by Sea Act of 1936;</li> <li>3. Loadline Convention;</li> <li>4. Code of Safe Practice for Cargo Stowage and Securing;</li> <li>5. Company guides and instructions regarding cargo stowage;</li> <li>6. Information provided in the shipboard cargo securing manual;</li> <li>7. Certificates required for inspection by a port state control officer; and</li> <li>8. Possible causes of cargo damage that may occur, but for which the ship owner/operator will not be held liable.</li> </ol>

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Task No./Name	STCW Competence	Knowledge, Understanding, and Proficiency	Performance Condition	Performance Behavior	Performance Standard
11.1.B Prepare a loading and discharge plan <i>Course</i>	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	On board a ship, or in a laboratory, when given information concerning a future cargo operation and given ship stability data for a vessel of at least 1,600 GRT or 3,000 GT and/or use of vessel-specific software,	the candidate prepares a loading/discharge plan.	The candidate's plan includes: <ol style="list-style-type: none"> <li>1. Stability and trim calculations;</li> <li>2. Bending moment and stress calculations;</li> <li>3. Application of appropriate procedures, rules and regulations regarding the loading and stowage of hazardous cargo on deck;</li> <li>4. Application of appropriate procedures, rules and regulations regarding the loading and stowage of incompatible cargoes;</li> <li>5. Application of appropriate procedures, rules and regulations regarding the stowage locations of easily damaged and/or contaminated cargoes;</li> <li>6. Rigging of appropriate cargo equipment for the loading and/or discharge of cargo;</li> <li>7. Securing of the loaded cargo;</li> <li>8. Listing of safety procedures to be followed during the cargo operation;</li> <li>9. Collecting and collating the appropriate cargo paperwork; and</li> <li>10. An initial schedule of events for the cargo operation.</li> </ol>

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Task No./Name	STCW Competence	Knowledge, Understanding, and Proficiency	Performance Condition	Performance Behavior	Performance Standard
11.2.A Effect of cargo on trim and stability <i>Course</i>	Plan and ensure safe loading, stowage, securing, care during the voyage and unloading of cargoes	Knowledge of the effect on trim and stability of cargoes and cargo operations	In an approved or accepted <i>Advanced Stability</i> course, when asked to describe the effect of cargoes and cargo operations on trim and stability,	the candidate describes or selects the answer that describes the effect on trim and stability.	The candidate's description includes : <ol style="list-style-type: none"> <li>1. Effect of the ship's rolling and pitching on:               <ol style="list-style-type: none"> <li>a. Break-bulk cargoes;</li> <li>b. Timber cargoes;</li> <li>c. Containers;</li> <li>d. Hazardous materials;</li> <li>e. Grain cargoes; and</li> <li>f. Bulk cargoes;</li> </ol> </li> <li>2. Liquefaction of bulk and grain cargoes due to vibration;</li> <li>3. Effects on a ship due to movement of cargo:               <ol style="list-style-type: none"> <li>a. Free-surface effect;</li> <li>b. Change in GM;</li> <li>c. Change in CG; and</li> <li>d. Damage to ship's structure; and</li> </ol> </li> <li>4. Deck cargo stowage:               <ol style="list-style-type: none"> <li>a. Increased wracking stresses;</li> <li>b. Saltwater damage;</li> <li>c. Rain damage; and</li> <li>d. Heat damage.</li> </ol> </li> </ol>

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Task No./Name	STCW Competence	Knowledge, Understanding, and Proficiency	Performance Condition	Performance Behavior	Performance Standard
11.3.A Calculate GM at arrival <i>Course</i>	Plan and ensure safe loading, stowage, securing, care during the voyage and unloading of cargoes	Use of stability and trim diagrams and stress calculating equipment, including automatic database (ADB) equipment, and knowledge of loading cargoes and ballasting in order to keep hull stress within acceptable limits	In an approved or accepted <i>Advanced Stability</i> course, given stability software for a ship of 10,000 GRT or more, and during a loading of at least 5,000 long tons and a discharge of least 7,000 long tons,	the candidate determines the arrival GM at the next port of call.	The candidate's GM calculation utilizes: <ol style="list-style-type: none"> <li>1. Loading and discharge data;</li> <li>2. Amount of potable fresh water and ballast;</li> <li>3. Details of all stores taken aboard;</li> <li>4. All fuel data;</li> <li>5. All free-surface data; and</li> <li>6. All changes due to consumption of fuel, water, and stores.</li> </ol>
11.3.B Calculate GM for flooded engine room <i>Course</i>	Plan and ensure safe loading, stowage, securing, care during the voyage and unloading of cargoes	Use of stability and trim diagrams and stress calculating equipment, including automatic database (ADB) equipment, and knowledge of loading cargoes and ballasting in order to keep hull stress within acceptable limits	In an approved or accepted <i>Advanced Stability</i> course, given stability software for a ship of 10,000 GRT or more, with a loaded voyage condition entered, and given a simulation of a flooded engine room,	the candidate correctly determines the GM.	The candidate's GM calculation is correct and satisfactorily completed within 5 minutes.
11.3.C Calculate GM for flooded hatch <i>Course</i>	Plan and ensure safe loading, stowage, securing, care during the voyage and unloading of cargoes	Use of stability and trim diagrams and stress calculating equipment, including automatic database (ADB) equipment, and knowledge of loading cargoes and ballasting in order to keep hull stress within acceptable limits	In an approved or accepted <i>Advanced Stability</i> course, given stability software for a ship of 10,000 GRT or more, with a loaded voyage condition entered, and given a simulation of a flooded hatch,	the candidate correctly determines the GM.	The candidate's GM calculation is correct and satisfactorily completed within 5 minutes.

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Task No./Name	STCW Competence	Knowledge, Understanding, and Proficiency	Performance Condition	Performance Behavior	Performance Standard
11.3.D Calculate Shearing forces and bending moment <i>Course</i>	Plan and ensure safe loading, stowage, securing, care during the voyage and unloading of cargoes	Use of stability and trim diagrams and stress calculating equipment, including automatic database (ADB) equipment, and knowledge of loading cargoes and ballasting in order to keep hull stress within acceptable limits	In an approved or accepted <i>Advanced Stability</i> course, given stability software for a ship of 10,000 GRT or more that is loaded to between 1/3 and 1/2 of its capacity, and given a simulation of cargo loading in adjacent cargo spaces,	the candidate determines the shearing forces and bending moments during loading.	The candidate determines the shearing forces and bending moments including: <ol style="list-style-type: none"> <li>1. Properly entering the data for the cargo and its location; and</li> <li>2. Correctly determining shearing forces and bending moments within 10 minutes.</li> </ol>
11.4.A Timber cargo stowage and securing	Plan and ensure safe loading, stowage, securing, care during the voyage and unloading of cargoes	Stowage and securing of cargoes on board ships, including cargo handling gear and securing and lashing equipment	When asked by a Qualified Assessor to describe the proper stowage and securing of timber cargoes on board ships,	the candidate describes proper stowage and securing.	The candidate's description includes: <ol style="list-style-type: none"> <li>1. Code of Safe Practice for Ships Carrying Timber Deck Cargos;</li> <li>2. Inspection of lashings:               <ol style="list-style-type: none"> <li>a. Maximum height of timber deck cargoes;</li> <li>b. Loadline; and</li> <li>c. Stability information;</li> </ol> </li> <li>3. Personnel safety;</li> <li>4. When worst stability condition during voyage is most likely to occur; and</li> <li>5. Actions to take if angle of loll occurs.</li> </ol>

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Task No./Name	STCW Competence	Knowledge, Understanding, and Proficiency	Performance Condition	Performance Behavior	Performance Standard
11.4.B Container stowage and securing	Plan and ensure safe loading, stowage, securing, care during the voyage and unloading of cargoes	Stowage and securing of cargoes on board ships, including cargo handling gear and securing and lashing equipment	When asked by a Qualified Assessor to describe the proper stowage and securing of containers on board ships,	the candidate describes proper stowage and securing of containers.	<p>The candidate's description includes:</p> <ol style="list-style-type: none"> <li>1. General stowage instructions, including:               <ol style="list-style-type: none"> <li>a. Loading the vessel according to a stowage and securing plan;</li> <li>b. Damaged containers are loaded; and</li> <li>c. Each container should be packed according to good stowage practices as if that container were a hold of a general cargo ship;</li> </ol> </li> <li>2. General lashing and securing instructions:               <ol style="list-style-type: none"> <li>a. Lashing and securing should be performed as per the ship's cargo securing manual;</li> <li>b. If there is more than one type of twist lock aboard, each type should be clearly identified;</li> <li>c. All twist locks should be locked when in use;</li> <li>d. Twist locks must be inserted so that the opening devices are accessible;</li> <li>e. Lashings should be set as close in line to the stresses that each container block will experience when the ship is at sea; and</li> <li>f. Dunnage should only come into contact with support members;</li> </ol> </li> <li>3. Lashing and securing safety such as:               <ol style="list-style-type: none"> <li>a. Personnel working in the cargo area must wear protective helmets and shoes;</li> <li>b. Securing and unsecuring of containers should only be done at berth or anchor;</li> <li>c. Not dropping fittings from aloft; and</li> <li>d. Not working on top of container stacks without a fall protection system in use; and</li> </ol> </li> </ol> <p style="text-align: right;"><i>Continued on next page</i></p>

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Task No./Name	STCW Competence	Knowledge, Understanding, and Proficiency	Performance Condition	Performance Behavior	Performance Standard
11.4.B <i>Continued</i>  Container stowage and securing					<p style="text-align: center;"><i>Continued from previous page</i></p> <p>4. The consequences from the misuse of securing devices such as the:</p> <ul style="list-style-type: none"> <li>a. Damage to containers;</li> <li>b. Loss of containers;</li> <li>c. Overstressing of securing devices; and</li> <li>d. Overstressing of the ship's structure.</li> </ul>
11.4.C  Stowage and securing of heavy lift cargoes	Plan and ensure safe loading, stowage, securing, care during the voyage and unloading of cargoes	Stowage and securing of cargoes on board ships, including cargo handling gear and securing and lashing equipment	When asked by a Qualified Assessor to describe the proper stowage and securing of heavy lift cargoes on board ships,	the candidate describes the proper stowage and securing.	<p>The candidate's description includes:</p> <ol style="list-style-type: none"> <li>1. Use of dunnage;</li> <li>2. Use of special supports for awkward shaped loads;</li> <li>3. Use of shoring on the decks below the heavy lift;</li> <li>4. Ship's stability considerations when: <ul style="list-style-type: none"> <li>a. Swinging load on board; and</li> <li>b. After the load is secured in place;</li> </ul> </li> <li>5. When rigging lifting gear, remember the weight of the lifting gear when doing calculations;</li> <li>6. Pre-lift inspections;</li> <li>7. Post-lift inspections; and</li> <li>8. The experience of winch operators.</li> </ol>

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Task No./Name	STCW Competence	Knowledge, Understanding, and Proficiency	Performance Condition	Performance Behavior	Performance Standard
11.4.D Stowage and securing of cargoes on Ro-Ro ships	Plan and ensure safe loading, stowage, securing, care during the voyage and unloading of cargoes	Stowage and securing of cargoes on board ships, including cargo handling gear and securing and lashing equipment	When asked by a Qualified Assessor to describe the proper stowage and securing of cargoes on Ro-Ro ships,	the candidate describes proper stowage and securing of cargoes.	The candidate's description includes: 1. Loading and unloading of Ro-Ro ships; <ol style="list-style-type: none"> <li>Vertical clearances such as load height vs. deck heights;</li> <li>Horizontal clearances such as design load width vs. actual load width;</li> <li>Ramp gradient;</li> <li>Vehicle envelope;</li> <li>Loading and removal of trailers;</li> <li>Exhaust fumes;</li> <li>Layout of decks;</li> <li>Design deck load vs. cargo weight;</li> <li>Design load shape vs. actual load shape;</li> <li>Lashing equipment available;</li> <li>Securing points on vessel; and <ol style="list-style-type: none"> <li>Lashing points on vehicles; and</li> </ol> </li> </ol> 2. Operation of watertight doors and hatches: <ol style="list-style-type: none"> <li>Opening of exterior watertight doors and hatches;</li> <li>Opening of interior watertight doors and hatches;</li> <li>Inspection of watertight doors and hatches;</li> <li>Closing and securing of internal watertight doors and hatches; and</li> <li>Closing and securing of external watertight doors and hatches.</li> </ol>

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Task No./Name	STCW Competence	Knowledge, Understanding, and Proficiency	Performance Condition	Performance Behavior	Performance Standard
11.5.A Receipt, tallying, and delivery of cargo	Plan and ensure safe loading, stowage, securing, care during the voyage and unloading of cargoes	Loading and unloading operations, with special regard to the transport of cargoes identified in the Code of Safe Practice for Cargo Stowage and Securing	When asked by a Qualified Assessor to describe the receipt, tallying, and delivery of cargo,	the candidate describes receipt, tallying, and delivery of cargo.	<p>The candidate's description includes:</p> <ol style="list-style-type: none"> <li>1. Responsibility of the Master for the cargo;</li> <li>2. Tallying and; <ol style="list-style-type: none"> <li>a. Its reconciliation with bills of lading and cargo interests;</li> <li>b. Rejection of damaged goods;</li> <li>c. Goods in dispute;</li> <li>d. Broached and broken goods;</li> <li>e. Waste from cargo transfer; and</li> <li>f. Mate's receipts;</li> </ol> </li> <li>3. Letter of Indemnity;</li> <li>4. Note of Protest;</li> <li>5. Dangerous goods;</li> <li>6. Containers; <ol style="list-style-type: none"> <li>a. Seals and locks;</li> <li>b. Damaged containers;</li> <li>c. Goods from damaged containers; and</li> <li>d. Unknown contents; and</li> <li>e. Damage to ship during loading and unloading.</li> </ol> </li> </ol>

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Task No./Name	STCW Competence	Knowledge, Understanding, and Proficiency	Performance Condition	Performance Behavior	Performance Standard
11.5.B Care of cargo during carriage	Plan and ensure safe loading, stowage, securing, care during the voyage and unloading of cargoes	Loading and unloading operations, with special regard to the transport of cargoes identified in the Code of Safe Practice for Cargo Stowage and Securing	When asked to describe the care of cargo during carriage,	the candidate describes care of cargo during carriage.	The candidate's description includes: 1. Preventing damage to cargo due to: a. Chafing and/or crushing of cargo; b. High temperatures near common bulkhead with engine room and heated tanks; c. Temperature extremes near the underside of decks exposed to sunlight and the deck above a heated tank; d. Freezing; e. Pilferage; and f. Cargo moving equipment such as forklifts; 2. Preventing possible contamination of cargo due to: a. Inadequate cleaning of holds and/or tanks of residue from previous cargo; b. Dirty dunnage and/or securing equipment; c. Leaking fuel oil tanks; d. Leaking cargo tanks; e. Leaking cargo; f. Dust; and g. Sweat damage.

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Task No./Name	STCW Competence	Knowledge, Understanding, and Proficiency	Performance Condition	Performance Behavior	Performance Standard
11.5.C Safe use of cargo handling gear	Plan and ensure safe loading, stowage, securing, care during the voyage and unloading of cargoes	Loading and unloading operations, with special regard to the transport of cargoes identified in the Code of Safe Practice for Cargo Stowage and Securing	When asked by a Qualified Assessor to describe the safe use of cargo handling gear,	the candidate describes safe use of cargo handling gear.	<p>The candidate's description includes:</p> <ol style="list-style-type: none"> <li>1. Defining the following terms: <ol style="list-style-type: none"> <li>a. <i>competent person</i>;</li> <li>b. <i>responsible person</i>;</li> <li>c. <i>authorized person</i>;</li> <li>d. <i>lifting appliance</i>; and</li> <li>e. <i>loose gear</i>;</li> </ol> </li> <li>2. National laws and regulations, and other sources of requirements regarding: <ol style="list-style-type: none"> <li>a. Safe means of access to ships, holds, staging, equipment and lifting appliances;</li> <li>b. Safe opening and closing of hatches, protection of hatchways and work in holds and tanks;</li> <li>c. Construction, maintenance and use of lifting and other cargo-handling appliances;</li> <li>d. Rigging and use of ships derricks;</li> <li>e. Testing, examination and certification of lifting appliances, loose gear, and other pieces of equipment forming part of a load;</li> <li>f. Handling different types of cargo; and</li> <li>g. Dangerous substances and other hazards that occur when handling cargo;</li> </ol> </li> </ol> <p style="text-align: right;"><i>Continued on next page</i></p>

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Task No./Name	STCW Competence	Knowledge, Understanding, and Proficiency	Performance Condition	Performance Behavior	Performance Standard
11.5.C <i>Continued</i> Safe use of cargo handling gear					<p><i>Continued from previous page</i></p> <p>3. Personnel protection from accidents by:</p> <ul style="list-style-type: none"> <li>a. Installing guards on dangerous machinery;</li> <li>b. Marking of low beams, open hatches, and other equipment and structures that may present a collision or falling hazard;</li> <li>c. Marking of safe-working loads;</li> <li>d. Fencing of openings;</li> <li>e. Limiting access to the control of equipment to authorized personnel only;</li> <li>f. Testing equipment before first time use; and</li> <li>g. Proper maintenance and inspection of equipment in use;</li> </ul> <p>4. Locating elements of the ship's rigging plan; and</p> <p>5. Hazards of fumigation.</p>
11.5.D Develop a loading plan	Plan and ensure safe loading, stowage, securing, care during the voyage and unloading of cargoes	Loading and unloading operations, with special regard to the transport of cargoes identified in the Code of Safe Practice for Cargo Stowage and Securing	On board a ship of at least 1,600 GRT or 3,000 GT, or in a laboratory, when given a list of cargo to be loaded and discharged, the stability and trim booklet for the ship or vessel specific software and any other onboard reference materials,	the candidate develops a loading plan for a hold or holds.	The candidate's plan takes into account the following: <ul style="list-style-type: none"> <li>1. Carriage requirements of each cargo loaded;</li> <li>2. Potential damage that may occur to each cargo that is loaded or unloaded and how to prevent that damage;</li> <li>3. Precautions to prevent and/or contain leakage of liquid cargo;</li> <li>4. Precautions to prevent pilferage and/or contamination of cargo; and</li> <li>5. Minimizing the risk of injury or death to: <ul style="list-style-type: none"> <li>a. Ship's personnel;</li> <li>b. Longshoremen;</li> <li>c. Visitors; and</li> <li>d. Other personnel expected to attend the transfer.</li> </ul> </li> </ul>

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Task No./Name	STCW Competence	Knowledge, Understanding, and Proficiency	Performance Condition	Performance Behavior	Performance Standard
11.5.E Inspect cargo running gear <i>Note 1</i>	Plan and ensure safe loading, stowage, securing, care during the voyage and unloading of cargoes	Loading and unloading operations, with special regard to the transport of cargoes identified in the Code of Safe Practice for Cargo Stowage and Securing	On board a ship, or in a laboratory, when given a sampling of loose gear, line and wire rope,	the candidate demonstrates and describes the proper examination of wire ropes, fiber line, cargo blocks, shackles, and chain for fractures, distortion, and proper maintenance.	The candidate examines the following and reports the results to the assessor, including: <ol style="list-style-type: none"> <li>1. Wire ropes:               <ol style="list-style-type: none"> <li>a. Safe working load;</li> <li>b. Use;</li> <li>c. Number of fish hooks;</li> <li>d. Lubrication;</li> <li>e. Elongation; and</li> <li>f. Kinks;</li> </ol> </li> <li>2. Fiber lines:               <ol style="list-style-type: none"> <li>a. Safe working load;</li> <li>b. Use;</li> <li>c. Broken strands;</li> <li>d. Rotting;</li> <li>e. Acid or sun damage; and</li> <li>f. Kinks;</li> </ol> </li> <li>3. Cargo blocks:               <ol style="list-style-type: none"> <li>a. Safe working load;</li> <li>b. Use;</li> <li>c. Number of sheaves;</li> <li>d. Elongation;</li> <li>e. Lubrication;</li> <li>f. Chafing;</li> <li>g. Damage to cheeks; and</li> <li>h. Free movement of sheave;</li> </ol> </li> </ol> <p style="text-align: right;"><i>Continued on next page</i></p>

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Task No./Name	STCW Competence	Knowledge, Understanding, and Proficiency	Performance Condition	Performance Behavior	Performance Standard
11.5.E <i>Continued</i> Inspect cargo running gear <i>Note 1</i>					<i>Continued from previous page</i> 4. Shackles: a. Safe working load; b. Use; c. Elongation; d. Pin fits and can be removed; and e. Chafing; 5. Chain: a. Safe working load; b. Use; c. Elongation; and d. Chafing.
11.6.A Basic concepts of oil tanker operations <i>Note 1</i>	Plan and ensure safe loading, stowage, securing, care during the voyage and unloading of cargoes	General knowledge of tankers and tanker operations	When asked by a Qualified Assessor to describe basic concepts of tanker operations,	the candidate describes, in general terms, basic tanker operations.	The candidate's description includes: 1. Defining general terms and concepts such as: a. <i>Reid Vapor Pressure (RVP)</i> ; b. <i>flashpoint</i> ; c. <i>flammable</i> ; d. <i>upper flammable limit</i> ; e. <i>lower flammable limit</i> ; f. <i>auto-ignition temperature</i> ; g. <i>viscosity</i> ; and h. <i>pour point</i> ; 2. Points of interest related to the carriage of bulk liquid cargoes such as: a. Why differenced between RVP and actual tank pressures occur; b. Why flashpoint may not be used as an absolute indicator of safety; and c. Change of viscosity with temperature.

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Task No./Name	STCW Competence	Knowledge, Understanding, and Proficiency	Performance Condition	Performance Behavior	Performance Standard
11.6.B ISGOTT contents and application <i>Note 1</i>	Plan and ensure safe loading, stowage, securing, care during the voyage and unloading of cargoes	General knowledge of tankers and tanker operations	When asked by a Qualified Assessor to describe the contents and application of the International Safety Guide for Oil Tankers and Terminals (ISGOTT),	the candidate describes the purpose, contents, and use of ISGOTT.	The description includes, in general terms, the purpose, use, and content of ISGOTT.
11.6.C Oil tanker operations <i>Note 1</i>	Plan and ensure safe loading, stowage, securing, care during the voyage and unloading of cargoes	General knowledge of tankers and tanker operations	When asked by a Qualified Assessor to describe basic oil and chemical tanker operations,	the candidate describes, in general terms, tanker operations.	The candidate describes: <ol style="list-style-type: none"> <li>1. Ballasting;</li> <li>2. Inert gas systems;</li> <li>3. Tank cleaning, including crude oil washing;</li> <li>4. Discharge of oil, including:               <ol style="list-style-type: none"> <li>a. Limitations at sea and in port; and</li> <li>b. Oil record book entries;</li> </ol> </li> <li>5. Gas freeing, including:               <ol style="list-style-type: none"> <li>a. Reasons for gas freeing;</li> <li>b. Order of procedures to be accomplished;</li> <li>c. Equipment needed; and</li> <li>d. Continuous monitoring after gas freeing.</li> </ol> </li> </ol>

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Task No./Name	STCW Competence	Knowledge, Understanding, and Proficiency	Performance Condition	Performance Behavior	Performance Standard
11.6.D Basic concepts of gas tanker operations <i>Note 1</i>	Plan and ensure safe loading, stowage, securing, care during the voyage and unloading of cargoes	General knowledge of tankers and tanker operations	When asked by a Qualified Assessor to describe basic gas tanker operations,	the candidate describes, in general terms, basic gas tanker operations.	The candidate: <ol style="list-style-type: none"> <li>1. Defines:               <ol style="list-style-type: none"> <li>a. <i>Liquefied gas</i>;</li> <li>b. <i>Boiling point</i>;</li> <li>c. <i>Integral tank</i>; and</li> <li>d. <i>Membrane tank</i>; and</li> </ol> </li> <li>2. Describes the following cargo operations:               <ol style="list-style-type: none"> <li>a. Drying;</li> <li>b. Inerting;</li> <li>c. Purging;</li> <li>d. Cooling down;</li> <li>e. Loading;</li> <li>f. Cargo conditioning during passage;</li> <li>g. Discharging;</li> <li>h. Changing cargoes;</li> <li>i. Gas freeing; and</li> <li>j. Preparing for tank inspection.</li> </ol> </li> </ol>

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Task No./Name	STCW Competence	Knowledge, Understanding, and Proficiency	Performance Condition	Performance Behavior	Performance Standard
11.7.A Basic concepts of bulk carriers <i>Note 1</i>	Knowledge of operational and design limitations of bulk carriers Plan and ensure safe loading, stowage, securing, care during the voyage and unloading of cargoes	Ability to use all available shipboard data related to loading, care and unloading of bulk cargoes	When asked by a Qualified Assessor to describe the loading, care and unloading of bulk cargoes,	the candidate describes, in general terms, loading, care and unloading of bulk cargoes.	The candidate's description includes: <ol style="list-style-type: none"> <li>1. Trimming cargo;</li> <li>2. Explosiveness of grain dust;</li> <li>3. Ventilation to prevent spoilage;</li> <li>4. Proper preparation of holds;</li> <li>5. Hull stresses and vessel stability;</li> <li>6. Damage to ships structure;</li> <li>7. Avoiding overloading of the vessel; and</li> <li>8. Leakage of water into the hold.</li> </ol>
11.8.A Develop a garbage plan	Plan and ensure safe loading, stowage, securing, care during the voyage and unloading of 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	On board a ship, or in a laboratory,	the candidate develops a garbage plan for the vessel.	The candidate's plan includes: <ol style="list-style-type: none"> <li>1. Segregation of garbage into:               <ol style="list-style-type: none"> <li>a. Plastics;</li> <li>b. Floating dunnage, lining, or packing material;</li> <li>c. Ground down paper products, rags, glass, metal, bottles, crockery, etc.;</li> <li>d. Cargo residues, paper products, rags, glass, metal, bottles, crockery, etc.;</li> <li>e. Food waste; and</li> <li>f. Incinerator ash; and</li> </ol> </li> <li>2. Detailed instructions for:               <ol style="list-style-type: none"> <li>a. Collection of garbage;</li> <li>b. Discharge of garbage;</li> <li>c. Accidental discharge of garbage;</li> <li>d. Recording of the collection and discharge of garbage; and</li> <li>e. Reporting garbage collection and/or discharge.</li> </ol> </li> </ol>

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Task No./Name	STCW Competence	Knowledge, Understanding, and Proficiency	Performance Condition	Performance Behavior	Performance Standard
11.8.B Loading of packaged dangerous goods	Plan and ensure safe loading, stowage, securing, care during the voyage and unloading of cargoes	Ability to establish procedures for safe cargo handling with the provisions of the relevant instruments such as IMDG Code, IMSBC Code, MARPOL 73/78 Annexes III and V and other relevant information	When asked by a Qualified Assessor to identify the procedures for safe cargo handling in accordance with the provisions of the relevant regulations, conventions and good practice,	the candidate describes or selects the answer that describes/identifies the correct answer to that question.	The question(s) may include basic general concepts of the loading of packaged dangerous goods including: 1. Defining the following from the IMDG Code: a. <i>Dangerous goods</i> ; and b. <i>Packaged form</i> ; 2. Reporting of incidents involving dangerous goods; and 3. Stowage requirements for three items from Chapter 7.1 of the IMDG Code.
11.9.A Conduct cargo transfer meeting <i>Note 1</i>	Plan and ensure safe loading, stowage, securing, care during the voyage and unloading of cargoes	Ability to explain the basic principles for establishing effective communications and improving working relationship between ship and terminal personnel	On board a ship, or in a laboratory,	the candidate conducts a cargo transfer meeting with terminal personnel, under the supervision of the ship's Chief Mate or Master and demonstrates effective communications.	The candidate conducts the cargo transfer meeting with terminal personnel: 1. Using standard phrases; 2. Asking questions and repeating the answers in the candidate's terms; 3. Answering questions and confirming that the answer was properly understood; 4. Assigning personnel as needed for inspections and other pre-cargo transfer procedures; 5. Politely objecting to procedures requested from terminal personnel that would be counter to the proper discharge of the vessel or applicable rules and regulations; and 6. Acting in a manner that is not culturally offensive to the terminal personnel.

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Task No./Name	STCW Competence	Knowledge, Understanding, and Proficiency	Performance Condition	Performance Behavior	Performance Standard
12.1.A <i>Note 1</i>	Assess reported defects and damage to cargo spaces, hatch covers and ballast tanks and take appropriate action	Ability to explain how to avoid the detrimental effects on bulk carriers of corrosion, fatigue and inadequate cargo handling	This KUP is demonstrated by successful completion of assessment 11.7.A, above.		
13.1.A Carriage of dangerous goods <i>Note 1</i>	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	When asked by a Qualified Assessor to describe basic concepts for the proper stowage and carriage of dangerous cargoes,	the candidate describes basic concepts for stowage and carriage of dangerous goods.	The candidate's description includes: 1. Basic concepts used in the stowage and carriage of dangerous goods; and 2. Reporting of incidents involving dangerous goods.

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Task No./Name	STCW Competence	Knowledge, Understanding, and Proficiency	Performance Condition	Performance Behavior	Performance Standard
14.1.A Factors affecting trim and stability <i>Course</i>	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	In an approved or accepted <i>Advanced Stability</i> course, on a written examination, when asked to identify the theories and factors affecting trim and stability,	the candidate describes or selects the answer that best describes theories and factors affecting trim and stability.	The question(s) may include: 1. Effects of the center of gravity of slack tanks: a. Changes in stability that occur during a voyage; b. Effect of superstructure icing on stability; c. Angle of loll; and d. Effect of wind and waves of vessel stability; and 2. Synchronous rolling, including: a. Causes; b. Symptoms and identifying; and c. Actions to stop synchronous rolling.

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Task No./Name	STCW Competence	Knowledge, Understanding, and Proficiency	Performance Condition	Performance Behavior	Performance Standard
14.1.B Principles of shipbuilding materials <i>Course</i>	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	In an approved or accepted <i>Advanced Stability</i> course, on a written examination, when asked to identify the fundamental principles of shipbuilding materials,	the candidate describes or selects the answer that best describes/identifies the correct answer to that question.	The candidate's description includes: <ol style="list-style-type: none"> <li>1. Defining:               <ol style="list-style-type: none"> <li>a. <i>steel</i>;</li> <li>b. <i>tensile strength</i>;</li> <li>c. <i>ductility</i>;</li> <li>d. <i>hardness</i>;</li> <li>e. <i>toughness</i>;</li> <li>f. <i>strain</i>;</li> <li>g. <i>stress</i>; and</li> <li>h. <i>stress fracture</i>;</li> </ol> </li> <li>2. Effect of the following upon shipbuilding materials:               <ol style="list-style-type: none"> <li>a. Cold;</li> <li>b. Stress;</li> <li>c. Corrosion; and</li> <li>d. Dissimilar metals; and</li> </ol> </li> <li>3. The use and limitations of:               <ol style="list-style-type: none"> <li>a. High tensile steels;</li> <li>b. Aluminum alloys;</li> <li>c. Castings; and</li> <li>d. Forgings.</li> </ol> </li> </ol>

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Task No./Name	STCW Competence	Knowledge, Understanding, and Proficiency	Performance Condition	Performance Behavior	Performance Standard
14.1.C Principles of ship bulkheads <i>Note 1</i>	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	When asked by a Qualified Assessor to describe the fundamental principles of ship bulkheads,	the candidate describes fundamental principles of ship bulkheads.	The candidate's description includes: <ol style="list-style-type: none"> <li>1. Defining:               <ol style="list-style-type: none"> <li>a. <i>Transverse bulkheads</i>;</li> <li>b. <i>Collision bulkheads</i>;</li> <li>c. <i>Margin line</i>;</li> <li>d. <i>Bulkhead deck</i>;</li> <li>e. <i>Weather-tight</i>; and</li> <li>f. <i>Watertight</i>;</li> </ol> </li> <li>2. Purpose of:               <ol style="list-style-type: none"> <li>a. Transverse bulkheads;</li> <li>b. After peak bulkheads;</li> <li>c. Longitudinal bulkheads in cargo tanks;</li> <li>d. Cofferdam bulkheads;</li> <li>e. Fat plate bulkheads; and</li> <li>f. Corrugated bulkheads;</li> </ol> </li> <li>3. Construction of bulkheads such as when pierced by beams and piping; and</li> <li>4. Testing of bulkheads for watertightness.</li> </ol>
14.1.D Watertight integrity <i>Note 1</i>	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	When asked by a Qualified Assessor to describe the fundamental of watertight doors,	the candidate describes the location, operation, and testing of watertight doors.	The candidate's description includes: <ol style="list-style-type: none"> <li>1. Required locations of watertight doors;</li> <li>2. Minimum list at which a watertight door is designed to close;</li> <li>3. Testing of watertight doors;</li> <li>4. Frequency of testing of watertight doors; and</li> <li>5. Recordkeeping to the testing of watertight doors.</li> </ol>

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Task No./Name	STCW Competence	Knowledge, Understanding, and Proficiency	Performance Condition	Performance Behavior	Performance Standard
14.2.A Effect of flooding <i>Course</i>	Control trim, stability and stress	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	In an approved or accepted <i>Advanced Stability</i> course, on a written examination, when asked to identify the effect on trim and stability of a ship in the event of damage to and consequent flooding of a compartment,	the candidate describes or selects the answer that best describes the effect on trim and stability of a ship in the event of damage .	The candidate's description factors that must be considered including: 1. Loss of buoyancy; 2. Angle of loll; 3. Dangers involved in correcting a ships angle of loll; 4. Permeability of the cargo; 5. Water absorption by cargo; 6. Movement of the center of buoyancy; 7. Vertical location of the compartment; 8. Change of draft; 9. Change of trim; and 10. Calculating the virtual loss of GM.
14.3.A IMO recommendations concerning ship stability <i>Course Note 1</i>	Control trim, stability and stress	Knowledge of IMO recommendations concerning ship stability	In an approved or accepted <i>Advanced Stability</i> course, on a written examination, when asked to identify IMO recommendations concerning ship stability,	the candidate describes or selects the answer that best describes IMO recommendations concerning ship stability.	The candidate's description includes the information provided: 1. In a Stability Booklet as per SOLAS and the Load Line Protocol; 2. In permanently exhibited plans as required by SOLAS and MSC Circ. 919; 3. According to regulation 25 of MARPOL 73/78, Annex I; and 4. According to the Code on Intact Stability for all Types of Ships Covered by IMO Instruments.

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Task No./Name	STCW Competence	Knowledge, Understanding, and Proficiency	Performance Condition	Performance Behavior	Performance Standard
15.1.A Certificates required by international conventions <i>Note 1</i>	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  Certificates and other documents required to be carried on board ships by international conventions, how they may be obtained and their period of validity	When asked by a Qualified Assessor to identify the certificates required to be carried on board ships by international conventions,	the candidate identifies and describes the certificates that must be carried.	The candidate's description includes the following: <ol style="list-style-type: none"> <li>1. Certificate of Nationality (Ship's Registry);</li> <li>2. International Tonnage Certificate;</li> <li>3. Panama and Suez Canal Tonnage Certificates;</li> <li>4. International Load Line Certificate;</li> <li>5. Passenger Ship Safety Certificate;</li> <li>6. Cargo Ship Safety Construction Certificate;</li> <li>7. Cargo Ship Safety Equipment Certificate;</li> <li>8. Cargo Ship Safety Radiotelegraph Certificate;</li> <li>9. Cargo Ship Safety Radiotelephony Certificate;</li> <li>10. International Certificate of Fitness for the Carriage of Dangerous Chemicals in Bulk;</li> <li>11. International Certificate of Fitness for the Carriage of Liquefied Gasses in Bulk;</li> <li>12. International Oil Pollution Prevention Certificate;</li> <li>13. International Pollution Prevention Certificate for the Carriage of Noxious Liquid Substances in Bulk;</li> <li>14. International Sewage Pollution Prevention;</li> <li>15. Certificate of financial security required under the International Convention on Civil Liability for Oil Pollution Damage, 1969;</li> <li>16. Special Trade Passenger Ship Safety Certificate;</li> <li>17. Certificates for cargo-handling appliances;</li> <li>18. License(s) for the ship radio station; and</li> <li>19. INMARSAT access authorization certificate.</li> </ol>

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Task No./Name	STCW Competence	Knowledge, Understanding, and Proficiency	Performance Condition	Performance Behavior	Performance Standard
15.1.B Documents required to be carried <i>Note 1</i>	Monitor and control compliance with legislative requirements and measures to ensure safety of life at sea, security and the protection of the marine environment	Certificates and other documents required to be carried on board ships by international conventions, how they may be obtained and their period of validity	When asked by a Qualified Assessor to identify the documents required to be carried on board vessels,	the candidate identifies documents that must be carried.	The description includes the obligation to carry the following documents that should be available onboard: <ol style="list-style-type: none"> <li>1. Classification Society Certificates for Hull and Machinery, Refrigerating Machinery and Cargo Handling Appliances;</li> <li>2. Anchor and Chain Cable Certificate;</li> <li>3. Inflatable Liferaft Inspection Certificates;</li> <li>4. Stability, Loading, and Ballasting Information;</li> <li>5. Damage Control Plan and Booklets;</li> <li>6. Document of Authorization for Grain Loading;</li> <li>7. Oil Record Book;</li> <li>8. Official Log Book; Deck, Engine-room and Radio Logbooks;</li> <li>9. Articles of Agreement with the Crew;</li> <li>10. Seaman's Discharge Books;</li> <li>11. Certificates for Competency of Officers and Ratings;</li> <li>12. Minimum Safe Manning Document;</li> <li>13. Safety Management Certificate; and</li> <li>14. Copy of the owner's or manager's Document of Compliance.</li> </ol>

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Task No./Name	STCW Competence	Knowledge, Understanding, and Proficiency	Performance Condition	Performance Behavior	Performance Standard
15.1.C Documents required at arrival and departure <i>Note 1</i>	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  Certificates and other documents required to be carried on board ships by international conventions, how they may be obtained and their period of validity	When asked by a Qualified Assessor to identify the documents required at arrival or departure,	the candidate identifies the documents required.	The description includes the obligation to carry the following documents required at arrival or departure: <ol style="list-style-type: none"> <li>1. General declaration;</li> <li>2. Cargo declaration;</li> <li>3. Dangerous goods manifest or plan;</li> <li>4. Ship's stores declaration;</li> <li>5. Crew list;</li> <li>6. Passenger list;</li> <li>7. Deratting or Deratting Exemption Certificate; and</li> <li>8. Maritime Declaration of Health.</li> </ol>

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Task No./Name	STCW Competence	Knowledge, Understanding, and Proficiency	Performance Condition	Performance Behavior	Performance Standard
15.2.A International Convention on Load Lines <i>Note 1</i>	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  International Convention on Load Lines, 1966, as amended	When asked by a Qualified Assessor to describe the International Convention on Load Lines, 1966, as amended,	the candidate describes important provisions of the Convention.	The candidate's description includes: <ol style="list-style-type: none"> <li>1. Safety function of load lines;</li> <li>2. Requirements for a valid International Load Line Certificate;</li> <li>3. Defining the load line marks that may be marked on each side of the vessel; and</li> <li>4. Relationship of a ship's draft to its operations under the International Convention of Load Lines in the following operational situations:               <ol style="list-style-type: none"> <li>a. A ship must comply with the requirements for the zones and areas it is or will be sailing in;</li> <li>b. Applicable load line must never be submerged when the vessel is at sea;</li> <li>c. Determination of the applicable load line when a vessel departs from a port on the boundary between two zones or areas;</li> <li>d. Determination of the applicable load line when a vessel arrives at a port on the boundary between two zones or areas;</li> <li>e. Calculation of fresh water allowance to determine how far the applicable load line may be submerged; and</li> <li>f. Calculation of allowance for fuel and stores from sailing to departure to determine how far the load line may be submerged.</li> </ol> </li> </ol>

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Task No./Name	STCW Competence	Knowledge, Understanding, and Proficiency	Performance Condition	Performance Behavior	Performance Standard
15.3.A International Convention for the Safety of Life at Sea <i>Note 1</i>	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  International Convention for the Safety of Life at Sea, 1974, as amended	When asked by a Qualified Assessor to describe the International Convention for the Safety of Life at Sea (SOLAS), 1974, as amended,	the candidate describes important provisions of SOLAS.	The candidate's describes the obligations of the ship's Master under SOLAS, including: <ol style="list-style-type: none"> <li>1. Sending danger messages relating to ice, dangerous derelicts, dangers to navigation, tropical storms, ice accretion, unreported wind force 10 or above;</li> <li>2. Sail at moderate speed when in the area of ice;</li> <li>3. When receiving any signal that a ship or aircraft is in distress;</li> <li>4. The carriage of navigation equipment and publications;</li> <li>5. Proper manning;</li> <li>6. Testing of steering gear before sailing;</li> <li>7. Placarding of change-over of steering gear and use of remote steering;</li> <li>8. Emergency steering gear drills; and</li> <li>9. Logging of steering gear tests;</li> <li>10. Circumstances when the normal obligation of a ship's Master is waived when receiving a distress signal;</li> <li>11. Rights of the ship's Master to requisition a ship that has answered a call for assistance;</li> <li>12. Information required in danger messages; and</li> <li>13. Non-emergency use of international distress signals is prohibited.</li> </ol>

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Task No./Name	STCW Competence	Knowledge, Understanding, and Proficiency	Performance Condition	Performance Behavior	Performance Standard
15.4.A MARPOL 73/78 <i>Note 1</i>	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  International Convention for the Prevention of Pollution from Ships, as amended	When asked by a Qualified Assessor to describe the International Convention for the Prevention of Pollution from Ships, as amended,	the candidate describes important provisions of MARPOL.	The candidate's description includes: <ol style="list-style-type: none"> <li>1. The following points concerning the general construction of MARPOL 73/78 and its six annexes:               <ol style="list-style-type: none"> <li>a. Oil;</li> <li>b. Bulk noxious liquid substances;</li> <li>c. Packaged harmful substances;</li> <li>d. Sewage;</li> <li>e. Garbage; and</li> <li>f. Air pollution.</li> </ol> </li> <li>2. Who may start proceedings against a polluter;</li> <li>3. The obligation of the countries who are signatory to this Convention to apply to all ships, even if the ship is flagged in a country that is not a signatory.</li> <li>4. The annexes that are mandatory when a country becomes a signatory to the convention;</li> <li>5. The annexes that are only mandatory if the country chooses to become signatory to that particular annex;</li> <li>6. The annexes that the United States is signatory to and what replaces any annexes the United States is not signatory to; and</li> <li>7. Exceptions to each annex.</li> </ol>

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Task No./Name	STCW Competence	Knowledge, Understanding, and Proficiency	Performance Condition	Performance Behavior	Performance Standard
15.4.B MARPOL Annex I <i>Note 1</i>	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  International Convention for the Prevention of Pollution from Ships, As amended	When asked by a Qualified Assessor to describe International Convention for the Prevention of Pollution from Ships, Annex I,	the candidate describes important provisions of MARPOL Annex I.	The candidate's description includes important points of MARPOL 73/78 Annex I (Oil), including: <ol style="list-style-type: none"> <li>1. No changes should be made to the ship, except for direct replacement of equipment without the approval of the flag state;</li> <li>2. Master's duty to report an accident or defect that affects the integrity of the ship;</li> <li>3. International Oil Pollution Prevention (IOPP) certificate:               <ol style="list-style-type: none"> <li>a. Dates of intermediate and annual surveys;</li> <li>b. Record of construction and equipment;</li> <li>c. Duration of validity; and</li> <li>d. What will invalidate IOPP;</li> </ol> </li> <li>4. COW requirements;</li> <li>5. Oil record book;</li> <li>6. Master must be provided information regarding cargo loading and distribution to ensure subdivision and stability criteria compliance; and</li> <li>7. All ships over 400 GT (tankers over 150 GT) must carry an approved shipboard oil pollution emergency plan (SOPEP), the seven parts of which detail the following:               <ol style="list-style-type: none"> <li>a. General information;</li> <li>b. Preamble;</li> <li>c. Reporting requirements;</li> <li>d. Information required;</li> <li>e. Required contacts;</li> <li>f. Steps to control discharge; and</li> <li>g. Non-mandatory provisions.</li> </ol> </li> </ol>

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Task No./Name	STCW Competence	Knowledge, Understanding, and Proficiency	Performance Condition	Performance Behavior	Performance Standard
15.4.C MARPOL Annex II <i>Note 1</i>	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  International Convention for the Prevention of Pollution from Ships, as amended	When asked by a Qualified Assessor to describe International Convention for the Prevention of Pollution from Ships, Annex II,	the candidate describes important provisions of MARPOL Annex II.	The candidate's description includes: <ol style="list-style-type: none"> <li>1. MARPOL 73/78 Annex II (Noxious Liquid Substances in Bulk);</li> <li>2. The International Pollution Prevention Certificate for the Carriage of Noxious Liquid Substances in Bulk, including:               <ol style="list-style-type: none"> <li>a. Dates of intermediate and annual surveys;</li> <li>b. Record of construction and equipment;</li> <li>c. Duration of validity; and</li> <li>d. What will invalidate the certificate;</li> </ol> </li> <li>3. Categorization of noxious liquid substances;</li> <li>4. Procedures and Arrangements Manual;</li> <li>5. Cargo Record Book;</li> <li>6. Master must be provided information regarding cargo loading and distribution to ensure subdivision and stability criteria compliance; and</li> <li>7. All ships over 150 GT must carry an approved shipboard oil pollution emergency plan (SOPEP), the seven parts of which detail the following:               <ol style="list-style-type: none"> <li>a. General information;</li> <li>b. Preamble;</li> <li>c. Reporting requirements;</li> <li>d. Information required;</li> <li>e. Required contacts;</li> <li>f. Steps to control discharge; and</li> <li>g. Non-mandatory provisions.</li> </ol> </li> </ol>

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Task No./Name	STCW Competence	Knowledge, Understanding, and Proficiency	Performance Condition	Performance Behavior	Performance Standard
15.4.D MARPOL Annex III <i>Note 1</i>	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  International Convention for the Prevention of Pollution from Ships, as amended	When asked by a Qualified Assessor to describe International Convention for the Prevention of Pollution from Ships, Annex III,	the candidate describes important provisions of MARPOL Annex III.	The candidate's description includes the important points of MARPOL 73/78 Annex III (Packaged Harmful Substances).
15.4.E MARPOL Annex IV <i>Note 1</i>	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  International Convention for the Prevention of Pollution from Ships, as amended	When asked by a Qualified Assessor to describe International Convention for the Prevention of Pollution from Ships, Annex IV,	the candidate describes important provisions of MARPOL Annex IV.	The candidate's description includes the following important points of MARPOL 73/78 Annex IV (Sewage):  1. U.S. is not signatory to this Annex, however the following U.S. laws, regulations, and policies apply: a. Federal Water Pollution Act; b. U.S. requirements found in 33 CFR 159; and c. Applicable U. S. Coast Guard policy.

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Task No./Name	STCW Competence	Knowledge, Understanding, and Proficiency	Performance Condition	Performance Behavior	Performance Standard
15.4.F MARPOL Annex V <i>Note 1</i>	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  International Convention for the Prevention of Pollution from Ships, as amended	When asked by a Qualified Assessor to describe International Convention for the Prevention of Pollution from Ships, Annex V,	the candidate describes important provisions of MARPOL Annex V.	The candidate's description includes the following points of MARPOL 73/78 Annex V (Garbage): <ol style="list-style-type: none"> <li>1. Applicable requirement when garbage is mixed with other discharges;</li> <li>2. Provisions for the disposal of garbage, including:               <ol style="list-style-type: none"> <li>a. In special areas; and</li> <li>b. From and within 500 meters of offshore platforms;</li> </ol> </li> <li>3. Use of grinders and comminutors;</li> <li>4. Special areas;</li> <li>5. Record keeping; and</li> <li>6. Port state control inspections.</li> </ol>
15.4.G MARPOL Annex VI <i>Note 1</i>	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  International Convention for the Prevention of Pollution from Ships, as amended	When asked by a Qualified Assessor to describe International Convention for the Prevention of Pollution from Ships, Annex VI,	the candidate describes important provisions of MARPOL Annex VI.	The candidate's description includes the following points of MARPOL 73/78 Annex VI (Air Pollution): <ol style="list-style-type: none"> <li>1. No changes should be made to the ship, except for direct replacement of equipment without the approval of the flag state;</li> <li>2. Master's duty to report an accident or defect that affects the integrity of the ship; and</li> <li>3. International Air Pollution Prevention (IAPP) certificate, including:               <ol style="list-style-type: none"> <li>a. Dates of intermediate and annual surveys;</li> <li>b. Record of construction and equipment;</li> <li>c. Duration of validity; and</li> <li>d. What will invalidate IAPP.</li> </ol> </li> </ol>

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Task No./Name	STCW Competence	Knowledge, Understanding, and Proficiency	Performance Condition	Performance Behavior	Performance Standard
15.5.A International Health Regulations <i>Note 1</i>	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  Maritime declarations of health and the requirements of the International Health Regulations	When asked by a Qualified Assessor to describe the requirements of the International Health Regulations,	the candidate identifies and describes major provisions of relevant health regulations including the information and procedures that port health officials require to prevent the transmission of diseases.	The candidate's description includes: <ol style="list-style-type: none"> <li>1. Defining:               <ol style="list-style-type: none"> <li>a. <i>Maritime Declaration of Health;</i></li> <li>b. <i>Arrival of the ship;</i></li> <li>c. <i>Baggage;</i></li> <li>d. <i>Freight container;</i></li> <li>e. <i>Crew;</i></li> <li>f. <i>Diseases subject to the regulations;</i></li> <li>g. <i>Disinfecting;</i></li> <li>h. <i>Epidemic;</i></li> <li>i. <i>Free pratique;</i></li> <li>j. <i>Health administration;</i></li> <li>k. <i>Health authority;</i></li> <li>l. <i>Infected person;</i></li> <li>m. <i>Quarantine;</i></li> <li>n. <i>International voyage;</i></li> <li>o. <i>Isolation;</i></li> <li>p. <i>Medical examination;</i></li> <li>q. <i>Suspect;</i> and</li> <li>r. <i>Valid deratting certificate;</i></li> </ol> </li> <li>2. Master's obligation to inform port authorities of real or suspected illnesses;</li> <li>3. Process of requesting "free pratique", including:               <ol style="list-style-type: none"> <li>a. Procedures for requesting;</li> <li>b. Requesting by radio; and</li> <li>c. Expectation of granting; and</li> </ol> </li> <li>4. Health procedures involving:               <ol style="list-style-type: none"> <li>a. Transiting through a country's waters;</li> <li>b. Denial of entry due to health reasons;</li> <li>c. Measures concerning cargo and goods; and</li> <li>d. Measures concerning baggage.</li> </ol> </li> </ol>

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Task No./Name	STCW Competence	Knowledge, Understanding, and Proficiency	Performance Condition	Performance Behavior	Performance Standard
<p>15.6.A</p> <p>International instruments affecting the safety of the ship, passengers, crew and cargo</p> <p><i>Note 1</i></p>	<p>Monitor and control compliance with legislative requirements and measures to ensure safety of life at sea, security and the protection of the marine environment</p>	<p>Knowledge of international maritime law embodied in international agreements and conventions</p> <p>international instruments affecting the safety of the ship, passengers, crew and cargo</p>	<p>When asked by a Qualified Assessor to identify and describe international agreements and conventions,</p>	<p>the candidate identifies and describes major provisions of relevant international agreements and conventions.</p>	<p>The candidate's description includes underlying principles, content and application of the following:</p> <ol style="list-style-type: none"> <li>1. International Convention for the Unification of Certain Rules of Law with Respect to Collision Between Vessels;</li> <li>2. International Convention on Salvage;</li> <li>3. International Convention for the Unification of Certain Rules of Law Relating to Bills of Lading (Hague Visby Rules);</li> <li>4. The York-Antwerp Rules;</li> <li>5. STCW Convention; and</li> <li>6. ISM Code.</li> </ol>
<p>15.6.B</p> <p>International instruments affecting the safety of the ship, passengers, crew and cargo</p> <p><i>Note 1</i></p>	<p>Monitor and control compliance with legislative requirements and measures to ensure safety of life at sea, security and the protection of the marine environment</p>	<p>Knowledge of international maritime law embodied in international agreements and conventions</p> <p>international instruments affecting the safety of the ship, passengers, crew and cargo</p>	<p>When asked by a Qualified Assessor to identify and describe international instruments affecting the safety of the ship, passengers, crew and cargo,</p>	<p>the candidate identifies and describes major provisions of relevant international instruments.</p>	<p>The candidate's identifies and describes the important provisions of the following:</p> <ol style="list-style-type: none"> <li>1. Marine Note of Protest;</li> <li>2. Lloyd's Standard Form of Salvage Agreement;</li> <li>3. Charter parties;</li> <li>4. Marine insurance;</li> <li>5. General average;</li> <li>6. Partial loss;</li> <li>7. Total loss;</li> <li>8. Constructive total loss;</li> <li>9. Particular average;</li> <li>10. Subrogation; and</li> <li>11. P&amp;I Associations.</li> </ol>

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Task No./Name	STCW Competence	Knowledge, Understanding, and Proficiency	Performance Condition	Performance Behavior	Performance Standard
15.7.A Pollution prevention <i>Note 1</i>	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  methods and aids to prevent pollution of the marine environment by ships	When asked by a Qualified Assessor to identify and describe the provisions of relevant international environmental conventions,	the candidate describes the major provisions of relevant international environmental conventions.	The candidate's description includes the contents of the following relevant international environmental conventions: <ol style="list-style-type: none"> <li>1. Convention of the Prevention of Marine Pollution by Dumping of Wastes and Other Matter (London Dumping Convention);</li> <li>2. International Convention Relating to Intervention on the High Seas in Cases of Oil Pollution Casualties;</li> <li>3. Protocol relating to Intervention on the High Seas in Cases of Pollution by Substances other than Oil, 1973;</li> <li>4. International Convention on Civil Liability for Oil Pollution Damage, 1969;</li> <li>5. International Convention for the Control and Management of Ships' Ballast Water and Sediments;</li> <li>6. International Convention on Oil Pollution Preparedness;</li> <li>7. International Convention for the Safety of Life at Sea, 1974; and</li> <li>8. International Convention on the Establishment of an International Fund for Compensation for Oil Pollution Damage.</li> </ol>

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Task No./Name	STCW Competence	Knowledge, Understanding, and Proficiency	Performance Condition	Performance Behavior	Performance Standard
15.8.A National legislation to implement international conventions	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  National legislation for implementing international agreements and conventions	When asked by a Qualified Assessor to identify and describe national legislation for implementing international agreements and conventions,	the candidate identifies and describes major provisions of relevant U.S. national environmental laws.	The candidate may include the contents of the following relevant U.S. national environmental laws:  <ol style="list-style-type: none"> <li>1. Oil Pollution Act of 1990;</li> <li>2. Federal Water Pollution Control Act;</li> <li>3. Comprehensive Environmental Response Compensation and Liability Act;</li> <li>4. Resource Conservation and Recovery Act;</li> <li>5. Clean Air Act;</li> <li>6. Clean Vessel Act of 1992;</li> <li>7. Abandoned Barge Act of 1992;</li> <li>8. Non-indigenous Aquatic Nuisance Prevention and Control Act of 1990;</li> <li>9. The National Environmental Policy Act of 1970;</li> <li>10. Act to Prevent Pollution from Ships of 1980;</li> <li>11. Oil Terminal and Oil Tanker Environmental Oversight and Monitoring Act of 1990; and</li> <li>12. 33 CFR Subchapter O.</li> </ol>

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Task No./Name	STCW Competence	Knowledge, Understanding, and Proficiency	Performance Condition	Performance Behavior	Performance Standard
16.1.A Life-saving appliance regulations <i>Note 1</i>	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)	When asked to identify and describe lifesaving appliance regulations applicable to the vessel on which the assessment is performed,	the candidate identifies and describes requirements for specific equipment designated by the assessor.	The candidate correctly describes equipment requirements, including type and quantity that must be carried or frequency of the activity. The assessor should query the candidate on SOLAS requirements such as: <ol style="list-style-type: none"> <li>1. Number of two-way VHF radios;</li> <li>2. Number of radar transponders;</li> <li>3. Number of rocket parachute flares;</li> <li>4. Number of lifebuoys;</li> <li>5. Number of lifebuoys with lifelines;</li> <li>6. Number of life jackets;</li> <li>7. Number of immersion suits and thermal protective aids;</li> <li>8. Number of survival craft;</li> <li>9. Muster lists;</li> <li>10. Minimum manning for survival craft;</li> <li>11. Stowage of rescue boats;</li> <li>12. Stowage of lifeboats;</li> <li>13. Line throwing apparatus;</li> <li>14. Need for onboard training and drills;</li> <li>15. Recording of drills;</li> <li>16. Monthly inspections of survival craft; and</li> <li>17. Training manual.</li> </ol>

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Task No./Name	STCW Competence	Knowledge, Understanding, and Proficiency	Performance Condition	Performance Behavior	Performance Standard
16.2.A Plan fire or emergency drill	Maintain safety and security of the ship's crew and passengers and the operational condition of life-saving, fire-fighting and other safety systems	Organization of fire drills and abandon ship drills	On board a ship of at least 1,600 GRT or 3,000 GT or in a laboratory given a station bill and particulars for a vessel of at least 1,600 GRT or 3,000 GT,	the candidate plans a fire or emergency drill.	<p>The candidate:</p> <ol style="list-style-type: none"> <li>1. Determines: <ol style="list-style-type: none"> <li>a. Drill to be conducted;</li> <li>b. Location of the simulated casualty; and</li> <li>c. The portion of the station bill that applies;</li> </ol> </li> <li>2. Examines the location of the simulated casualty to determine: <ol style="list-style-type: none"> <li>a. Its suitability for the drill;</li> <li>b. Required manpower;</li> <li>c. Potential hazards; and</li> <li>d. Usability of the onboard emergency plans.</li> </ol> </li> <li>3. Uses the onboard emergency plan for the simulated casualty and space to be used and develops: <ol style="list-style-type: none"> <li>a. A script to use during the drill;</li> <li>b. Contingency plans; and</li> <li>c. Initial corrections to that emergency plan based upon the examination of the location</li> </ol> </li> <li>4. Walks through the emergency plan and its contingencies; and</li> <li>5. Consults with and obtains concurrence with the plan from the Chief Mate, Master and other senior officers that may be affected.</li> </ol>

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Task No./Name	STCW Competence	Knowledge, Understanding, and Proficiency	Performance Condition	Performance Behavior	Performance Standard
<p>16.3.A</p> <p>Develop a maintenance plan for lifesaving and firefighting equipment</p>	<p>Maintain safety and security of the ship's crew and passengers and the operational condition of life-saving, fire-fighting and other safety systems</p>	<p>Maintenance of operational condition of life-saving, fire-fighting and other safety systems</p>	<p>On board a ship, in a laboratory, a simulator, or in an approved course,</p>	<p>the candidate demonstrates the ability to maintain the ship's lifesaving and firefighting equipment.</p>	<p>The candidate:</p> <ol style="list-style-type: none"> <li>1. Develops a preventive maintenance plan for the following ship's lifesaving and firefighting equipment:               <ol style="list-style-type: none"> <li>a. Survival craft;</li> <li>b. Portable firefighting equipment;</li> <li>c. Fixed firefighting equipment;</li> <li>d. Life rings; and</li> <li>e. Personal floatation devices; and</li> </ol> </li> <li>2. For each type of equipment, the plan includes:               <ol style="list-style-type: none"> <li>a. Safety procedures for inspecting and simulating operation;</li> <li>b. Number on board;</li> <li>c. Storage;</li> <li>d. Exercising of equipment;</li> <li>e. Required inspections of equipment; and</li> <li>f. Maintenance.</li> </ol> </li> </ol>

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Task No./Name	STCW Competence	Knowledge, Understanding, and Proficiency	Performance Condition	Performance Behavior	Performance Standard
16.4.A Procedures to rescue persons from a ship in distress <i>Note 1</i>	Maintain safety and security of the ship's crew and passengers and the 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	When asked by a Qualified Assessor to describe general procedures to be taken to rescue persons from a ship in distress,	the candidate describes general procedures to be taken to rescue persons from a ship in distress.	The candidate's description includes: <ol style="list-style-type: none"> <li>1. Preference to wait for daylight, if possible;</li> <li>2. Establishing communications between ships;</li> <li>3. Replacing unneeded equipment in rescue boats with additional life jackets, lifebuoys, blankets, portable radios;</li> <li>4. Check area for debris and other hazards to the rescue boats;</li> <li>5. Providing a lee and use of oil, if needed;</li> <li>6. Rigging equipment to board survivors from boats or in the water;</li> <li>7. Recovering the rescue boat; and</li> <li>8. Alternatives that may be used if the seas are too rough to use rescue boats.</li> </ol>
16.4.B Man overboard procedures <i>Note 1</i>	Maintain safety and security of the ship's crew and passengers and the 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	When asked by a Qualified Assessor to describe general procedures to be performed on board when a person falls overboard,	the candidate describes general procedures to be performed on board when a person falls overboard.	The candidate's description includes: <ol style="list-style-type: none"> <li>1. Sounding the man overboard signal;</li> <li>2. Visual signals to be used to indicate that the ship is recovering a person overboard;</li> <li>3. Importance of man overboard drills;</li> <li>4. Use of recovery equipment to rescue a person overboard; and</li> <li>5. Actions to take when a person is reported missing at sea including, but not limited to:               <ol style="list-style-type: none"> <li>a. Search of the vessel;</li> <li>b. Use of the Williamson turn;</li> <li>c. Investigation of when the person was last seen; and</li> <li>d. Posting of lookouts.</li> </ol> </li> </ol>

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Task No./Name	STCW Competence	Knowledge, Understanding, and Proficiency	Performance Condition	Performance Behavior	Performance Standard
16.5.A Actions following fire, explosion, collision or grounding <i>Note 1</i>	Maintain safety and security of the ship's crew and passengers and the operational condition of life-saving, fire-fighting and other safety systems	Actions to limit damage and save the ship following a fire, explosion, collision or grounding	When asked by a Qualified Assessor to describe the actions to limit damage and save the ship,	the candidate describes general procedures to limit damage and save the ship due to a fire, explosion, collision or grounding.	The candidate's description includes: <ol style="list-style-type: none"> <li>1. General methods for fighting fires, including:               <ol style="list-style-type: none"> <li>a. Cooling bulkheads;</li> <li>b. Dangers of accumulated water;</li> <li>c. Overhauling a space;</li> <li>d. Setting a watch for re-ignition; and</li> <li>e. Precautions when entering a compartment after the fire has been extinguished; and</li> </ol> </li> <li>2. General procedures common to all incidents:               <ol style="list-style-type: none"> <li>a. Inspection to determine the extent of damage;</li> <li>b. Shoring weakened areas;</li> <li>c. Plugging holes;</li> <li>d. Electrical damage;</li> <li>e. Piping damage;</li> <li>f. Temporary repairs; and</li> <li>g. Adjusting speed and course to minimize stresses and water entry.</li> </ol> </li> </ol>

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Task No./Name	STCW Competence	Knowledge, Understanding, and Proficiency	Performance Condition	Performance Behavior	Performance Standard
16.5.B Abandon ship procedures <i>Note 1</i>	Maintain safety and security of the ship's crew and passengers and the operational condition of life-saving, fire-fighting and other safety systems	Actions to limit damage and save the ship following a fire, explosion, collision or grounding	When asked by a Qualified Assessor to identify the general procedures to be used when abandoning ship,	the candidate describes or selects the answer that best describes/identifies the correct answer to that question.	The subject may include the general procedures to be used when abandoning ship: <ol style="list-style-type: none"> <li>1. Determining that the ship is in imminent danger of:               <ol style="list-style-type: none"> <li>a. Sinking;</li> <li>b. Breaking up;</li> <li>c. Exploding; and</li> <li>d. Other conditions that make remaining on board impossible;</li> </ol> </li> <li>2. Distress messages and signals:               <ol style="list-style-type: none"> <li>a. To attract attention;</li> <li>b. By all means available; and</li> <li>c. The information to insert in the message; and</li> </ol> </li> <li>3. Launching of survival craft:               <ol style="list-style-type: none"> <li>a. When the ship is listing heavily;</li> <li>b. In heavy weather conditions; and</li> <li>c. The use of oil.</li> </ol> </li> </ol>
17.1.A Plan fire and emergency drill	Develop emergency and damage control plans and handle emergency situations	Preparation of contingency plans for response to emergencies	This KUP is demonstrated by successful completion of Task 16.2.A		

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Task No./Name	STCW Competence	Knowledge, Understanding, and Proficiency	Performance Condition	Performance Behavior	Performance Standard
17.2.A Prepare a damage control plan	Develop emergency and damage control plans and handle emergency situations	Ship construction, including damage control	In an approved or accepted <i>Advanced Stability</i> course, using the model of a vessel of at least 1,600 GRT or 3,000 GT	the candidate demonstrates knowledge of ship construction and damage control.	<p>The candidate's plan:</p> <ol style="list-style-type: none"> <li>1. Defines the following: <ol style="list-style-type: none"> <li>a. Margin line;</li> <li>b. Permeability of a space; and</li> <li>c. Subdivision;</li> </ol> </li> <li>2. Determines, for a starboard or portside compartment designated by the assessor: <ol style="list-style-type: none"> <li>a. Stability if this compartment is flooded;</li> <li>b. Effect of asymmetrical flooding on the ship;</li> <li>c. If the ship can counter the asymmetrical flooding of the designated compartment; and</li> <li>d. Effect on the ship's stability if the damage occurred in a Beaufort Scale 6 storm; and</li> </ol> </li> <li>3. Describes additional effects that may incur due to flooding, including: <ol style="list-style-type: none"> <li>a. Insufficient reserve buoyancy;</li> <li>b. Progressive flooding; and</li> <li>c. Added stresses.</li> </ol> </li> </ol>
17.3.A Fire prevention <i>Course Note 1</i>	Develop emergency and damage control plans and handle emergency situations	Methods and aids for fire prevention, detection and extinction	This KUP is demonstrated by completing the approved or accepted <i>Advanced Fire Fighting</i> course specified in 46 CFR 11.303.		

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17.4.A Use of Lifesaving appliances <i>Course</i> <i>Note 1</i>	Develop emergency and damage control plans and handle emergency situations	Functions and use of lifesaving appliances	This KUP is demonstrated by completing an approved or accepted <i>Proficiency in Survival Craft</i> or <i>Proficiency in Survival Craft Limited</i> course or if the mariner holds an endorsement for PSC or PSC-Limited.		
18.1.A Shipboard personnel management <i>Course</i> <i>Note 1</i>	Use of leadership and managerial skill	Knowledge of shipboard personnel management and training	In an approved or accepted <i>Leadership and Managerial Skills</i> course, when asked to describe key factors in shipboard personnel management,	the candidate describes or selects the answer that best describes factors in shipboard personnel management.	The candidate's description includes: 1. Principles of controlling subordinates and maintaining good relationships such as: a. Maintaining a consistent calm and even temperament; b. Being honest and fair; c. Intercultural acknowledgment; d. Staff attitudes; e. Exercise of authority; f. Group behavior; and g. Conditions of employment; 2. Organization of staff such as: a. Manning arrangements (46 CFR 15); b. Analysis of work; c. Allocation of staff; d. Organizing for safety and emergencies; e. Organizing for staff duties; f. Organizing for maintenance; g. Ship's records; h. Organizing communications on board ship; i. Meeting techniques; and 3. Onboard training such as: a. Training methods; and b. Emergency drills.

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Task No./Name	STCW Competence	Knowledge, Understanding, and Proficiency	Performance Condition	Performance Behavior	Performance Standard
18.1.B International maritime conventions  <i>Course Note 1</i>	Use of leadership and managerial skill	A knowledge of related international maritime conventions and recommendations, and national legislation	In an approved or accepted <i>Leadership and Managerial Skills</i> course, when on a written examination asked to identify maritime conventions and recommendation,	the candidate describes or selects the answer that best describes/identifies the correct answer to the question(s).	The question(s) may include the principles and application of the: <ol style="list-style-type: none"> <li>1. ISM Code;</li> <li>2. ISPS Code; and</li> <li>3. STCW Convention, including:               <ol style="list-style-type: none"> <li>a. The principle of port state control;</li> <li>b. Minimum hours of rest;</li> <li>c. Shipboard familiarization; and</li> <li>d. Shipboard training and training records.</li> </ol> </li> </ol>
18.1.C National legislation  <i>Course Note 1</i>	Use of leadership and managerial skill	A knowledge of related national legislation	In an approved or accepted <i>Leadership and Managerial Skills</i> course, when asked on a written examination to describe national legislation,	the candidate describes or selects the answer that best describes/identifies the correct answer to the question(s).	The question(s) may include: <ol style="list-style-type: none"> <li>1. Americans with Disabilities Act;</li> <li>2. Merchant Marine Act of 1920;</li> <li>3. Merchant Marine Act of 1936;</li> <li>4. Maritime Transportation Security Act;</li> <li>5. 46 CFR parts 10 through 15; and</li> <li>6. 33 CFR parts 101 through 105.</li> </ol>

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Task No./Name	STCW Competence	Knowledge, Understanding, and Proficiency	Performance Condition	Performance Behavior	Performance Standard
18.2.A Use of leadership and managerial skill  <i>Course Note 1</i>	Use of leadership and managerial skill	Ability to apply task and workload management... Knowledge and ability to apply effective resource management allocation, assignment, and prioritization of resources... Knowledge and ability to apply effective resource management effective communication on board and ashore... Knowledge and ability to apply effective resource management... Knowledge and ability to apply decision-making techniques...	These KUPs are demonstrated by successful completion of appropriate practical exercises in an approved or accepted <i>Leadership and Managerial Skills</i> course.		
19.1.A International Medical Guide for Ships  <i>Course Note 1</i>	Organize and manage the provision of medical care on board	A thorough knowledge of the use and contents of the following publications International Medical Guide for Ships or equivalent national publications	In an approved or accepted <i>Management of Medical Care</i> course, when asked on a written examination to describe the use and contents of the International Medical Guide for Ships,	the candidate describes or selects the answer that best describes/identifies the correct answer to the question(s).	The question(s) may include locating and answering specific questions concerning: <ol style="list-style-type: none"> <li>1. How to use this guide;</li> <li>2. Advice on medicines;</li> <li>3. Toxic hazards of chemicals, including poisoning; and</li> <li>4. Other information found in the guide.</li> </ol>

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Task No./Name	STCW Competence	Knowledge, Understanding, and Proficiency	Performance Condition	Performance Behavior	Performance Standard
19.2.A International Code of Signals – medical section <i>Course Note 1</i>	Organize and manage the provision of medical care on board	A thorough knowledge of the use and contents of the following publications medical section of the International Code of Signals	In an approved or accepted <i>Management of Medical Care</i> course, when asked on a written examination to describe the use and contents of the medical section of the International Code of Signals,	the candidate describes or selects the answer that best describes/identifies the correct answer to the question(s).	The candidate's description includes: <ol style="list-style-type: none"> <li>1. Identifying three-character medical signal codes that are presented in the examination question;</li> <li>2. Locating the three-character medical signal codes that are presented in a examination question concerning a defined medical condition;</li> <li>3. Adapting specific signals, as per the International Code of Signals, to indicate time, medications, or part of body affected;</li> <li>4. Using procedure signals to modify a medical signal code; and</li> <li>5. Identifying a medical signal code that is cross referenced from section of the International Code of Signals other than that specifically designated to the Medical Signal Code section of the International code of signals.</li> </ol>
19.3.A Medical First Aid Guide <i>Course Note 1</i>	Organize and manage the provision of medical care on board	A thorough knowledge of the use and contents of the following publications Medical First Aid Guide for Use in Accidents Involving Dangerous Goods	In an approved or accepted <i>Management of Medical Care</i> course, when asked on a written examination to describe the use and contents of the Medical First Aid Guide for Use in Accidents Involving Dangerous Goods,	the candidate describes or selects the answer that best describes/identifies the correct answer to the question(s).	The candidate's description includes locating and answering specific questions concerning: <ol style="list-style-type: none"> <li>1. How to use this guide;</li> <li>2. Emergency action;</li> <li>3. Toxic hazards of chemicals; and</li> <li>4. Other information that can be found in the guide.</li> </ol>

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