COMPETENCY MAPPING	
STCW Table:	**Table A – II / 1**
Title:	**Specification of minimum standard of competence for officers in charge of a navigational watch on ships of 500 gross tonnage or more.**
Guidance Notes (Scoring)	
Terms	Description
Reward	Earned points, an integer within the range of 0 to 100. The default value is 0.
Penalty	Penalty points, an integer within the range of 100 to 0. The default value is 100.
Single	A rule is triggered in the scenario only once: the first time the conditions occur.
Circular	A rule is triggered every time the conditions occur.
Time	Time dependency ruling
Weight	Multiplier is used to determine trainee's level of competency
Levels of Simulation	
Familiarization	Familiar with the equipment, layout procedures, and routine task.
Operational	The task relates to the inputs and outputs and their relationship and has to do with the performance of a function.
Functional	The task relates to the functions or activities performed by the system without reference to which of the elements of the system perform those functions.
Management	Relates to the management of the combination of systems to perform a given job.
Communication	Relates to effective communication between human resources to report, get feedback, or to execute a task.
Emergency	Task performed in circumstances where there is variation or deviation from an expected scenario or situation.
Crisis	Task performed when the emergency has developed into a crisis.

COMPETENCY MAPPING

Competence		KUP	Assessment Outcome	Performance Criteria	Performance Standard	Scoring Procedure	Level of Simulation	Methods of Assessment
FUNTION 1		**NAVIGATION AT THE OPERATIONAL LEVEL**						
C1	**Plan and conduct a passage and determine position**	**C1.1 Celestial Navigation** .1 Ability to use celestial bodies to determine the ship's position	At the end of the assessment, the candidate will be able to use celestial bodies to determine the ship's position.	Determine position using celestial bodies	1. Adjust any of the following sextant errors: a. Perpendicularity; b. Side error; c. Parallelism; and d. Collimation error. 2. Given a true altitude and observed sextant altitude of the sun and its azimuth, plot the Line of Position (LOP) using intercept method. 3. Given true altitudes and observed sextant altitudes of at least three (3) stars and its azimuth, plot the Line of Position (LOP) using intercept method.	Rubrics	N/A	N/A

Competence		KUP	Assessment Outcome	Performance Criteria	Performance Standard	Scoring Procedure	Level of Simulation	Methods of Assessment
		C1.2 **Terrestrial and coastal navigation** Ability to determine the ship's position by use of: .1 landmarks .2 aids to navigation, including lighthouses, beacons and buoys .3 dead reckoning, taking into account winds, tides, currents and estimated speed	At the end of the assessment, the candidate will be able to determine and plot the bearings of two charted objects	Appropriateness and reliability of the method used in fixing ship's position at regular intervals. Appropriateness of the primary method of fixing the ship's position to the prevailing circumstances and conditions	Use the terrestrial or coastal landmark in fixing ship's position on the following: 1. Determine the bearings of two charted objects and plot them; 2. Position is within±0.10 nm; 3. Crossing angles of bearing is not less than 30° nor more than 160° between bearings; and 4. Use of the largest scale charts suitable for the waters being transited	Reward/ Penalty	Operational/ Functional	Full Mission Stimulator and Mini Bridge
		C1.3 **Thorough knowledge of and ability to use nautical charts, and publications, such**	At the end of the assessment, the candidate will be able to identify the charts	Suitability and correctness of the largest scale charts selected for the area of navigation and	Satisfies the following: a. Correctly identifies and records the names and numbers of the charts;	Reward/ Penalty	Operational/ Functional	Full Mission Stimulator and Mini Bridge

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		as sailing directions, tide tables, notices to mariners, radio navigational warnings and ships' routeing information	needed for the voyage	publications in accordance with the latest information available Correctness and relevance of the information obtained from nautical charts and publications and accurateness in identifying potential navigational hazards	b. Selects the charts with the largest scales appropriate for the area being transited; and			
		C1.4 Electronic systems of position fixing and navigation .1 ability to determine the ship's position by use of electronic navigational aids	At the end of the assessment, the candidate will be able to determine ship's position using GPS, RADAR/ARPA	Application of acceptable instruments/system error to determine ship's position within the limit	1. Initialize the system; and 2. Determine the accuracy of the position using the following: a. GPS b. RADAR/ARPA, c. ECDIS	Reward/ Penalty	Operational/ Functional	Full Mission Stimulator and Mini Bridge

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		C1.5 **Echo Sounders** .1 ability to operate the equipment and apply the information correctly	At the end of the assessment, the candidate will be able to turn on, tests, and operates the echo sounder	Compliance of the performance checks to navigation systems with manufacturer's recommendations and good navigational practice	Ensures the following: 1. Turns the system on; 2. Tests the echo sounder in accordance with manufacturer's recommendations; 3. Notes the correct UTC on the echo sounder; 4. Ensures that the scale selected is the lowest appropriate for the vessel's draft and the depth of water of the area of transit; and 5. Adjusts the sensitivity to obtain proper depth reading on the display	Reward/ Penalty	Operational/ Functional	Full Mission Stimulator and Mini Bridge
		C1.6 **Compass – magnetic and gyro** .1 Knowledge of the principles of magnetic and gyro compasses **.2** Ability to determine errors	**At the end of the** assessment, the candidate must be able to determine variation, deviation, magnetic compass error and gyro compass error	Determination of error in magnetic and gyro compasses are correctly applied to courses and bearings	Describe variation and deviation on the following: Determines errors of the magnetic and gyro compasses using terrestrial such as: 1. Compares the magnetic compass heading to the corrected gyro heading (corrected for a known gyro error);	Reward/ Penalty	Operational/ Functional	Full Mission Stimulator and Mini Bridge

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					2. Determines the magnetic compass error to within ± 1.0° 3. Compares the magnetic compass heading to the charted range bearing; 4. Determines variation from the chart; 5. Determines the magnetic compass deviation to with-in ± 1.0° 6. Correctly records it in the compass record book and the ship's log.			
		C1.7 Steering Control System **.1** Knowledge of steering control systems, operational procedures and change-over from manual to automatic control and vice versa. Adjustment of controls for	At the end of the assessment, the candidate must be able to conducts the pre-departure tests of the vessel's steering gear	Suitability of the selected steering mode for the prevailing weather, sea, traffic conditions and intended maneuvers	Ensures the following: a. Turns on the steering b. control system; c. Aligns the steering gyro-repeater with the master gyro compass; d. Tests the controls for switching pumps and motors between the port and starboard steering systems after the required warm-up period Tests the steering systems as follows:	Reward/ Penalty	Operational/ Functional	Full Mission Stimulator and Mini Bridge

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		optimum performance			1) When the control is switched to hand steering, the rudder is tested throughout its full range of motion: and 2) When the control is switched to non fol-low-up, the rudder is tested throughout its full range of motion; 3) Switching over of steering mode from auto/manual vice ver-sa; 4) Set both steering mo-tor in operation; 5) Set the weather control in accordance with the manufacturer's rec-ommendations for the prevailing sea condi-tions for the area transited or simulated; and 6) Set the rate of turn control (if fitted) in ac-cordance with the standing orders.			
		C1.8 Meteorology .1 Ability to use and interpret						

Competence		KUP	Assessment Outcome	Performance Criteria	Performance Standard	Scoring Procedure	Level of Simulation	Methods of Assessment
		information obtained from ship borne meteorological instruments .2 Knowledge of the characteristics of the various weather system, reporting procedures and recording systems **.3** Ability to apply the meteorological information available	This KUP is demonstrated if the candidate has successfully passed the theoretical examination in the MARINA Competency Assessment System under Competence 1, KUP .8 – Meteorology.					
C2	**Maintain a safe navigational watch**	**C2.1 Watchkeeping** .1 Thorough knowledge of the content, application and intent of the International	At the end of the assessment, the candidate must be able to observe the principles and procedures in maintaining a safe navigational watch	Conformance and recognition of correct lights, shapes, and sound signals to the requirements contained in the COLREG 1972	Conform the following: 1. Correctly identifies the situation or position of 4 to 5 vessels that have different required shapes and sounds; and 2. Switching on the navigational lights and automatic fog signals	Rubrics	Operational/ Functional	Full Mission Stimulator and Mini Bridge

Competence		KUP	Assessment Outcome	Performance Criteria	Performance Standard	Scoring Procedure	Level of Simulation	Methods of Assessment
		Regulations for Preventing Collisions at Sea 1972 as amended						
		.2 Thorough knowledge of the principles to be observed in keeping a navigational watch	At the end of the assessment, the candidate properly relieves the watch in accordance with STCW Code Section A-VIII/2, Part 3, Paragraphs 21 and 22	Conformance of the conduct, handover and relief of the watch to the accepted principles and procedures	Observes the principles and procedures in keeping a navigational watch such as: 1. Read the standing orders and night orders 2. Note the position of the next charted waypoint 3. Determine and compare the vessel's position, course, and speed. 4. Verify the identities of critical aids to navigation in sight. 5. Determine tides and current as necessary. 6. Check and properly tune the radar and/or ARPA. 7. Check any targets displayed on the radar or ARPA. 8. Check the heading by magnetic compass.			

Competence		KUP	Assessment Outcome	Performance Criteria	Performance Standard	Scoring Procedure	Level of Simulation	Methods of Assessment
					(Compare gyro magnetic compass) 9. Determine navigational hazards likely to be encountered during the watch. 10. Determine possible effect of list, trim, water density and, squat on under-keel clearance 11. Identify vessels through observation of their required shapes 12. Identify vessels by hearing their required sound signals 13. Determines if risk of collision exists with approaching meeting, crossing, and overtaking vessels			
		.3 The use of routeing in accordance with the General Provisions on Ships' Routeing	At the end of the assessment, the candidate must be able to collect information to plan a safe and environmentally	Development of voyage plan in accordance with the General Provisions on Ships' Routeing	Ensure that the following are taken into account when creating a voyage plan: 1. Up to date charts of proper scale and the			

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			sound voyage plan, taking into account paragraph 2 of the annex to IMO Assembly Resolution A893 (21)		latest notices to mariners 2. Up to date sailing directions 3. Up to date tide and current tables 4. Weather information 5. Weather routing services 6. Port information			
		.4 The use of information from navigational equipment for maintaining a safe navigational watch	At the end of the assessment, the candidate must be able to use the information from navigational equipment for maintaining a safe navigational watch	Application of the International Regulations for Preventing Collisions at Sea, 1972 regarding frequency and extent of monitoring of traffic, the ship and environment to accepted principles and procedures	Applies the International Regulations for Preventing Collisions at Sea, 1972and maneuvers the vessel to avoid collision, if required such as: 1. Determine the aspect of the approaching vessel. 2. Identify the situation as a crossing situation. 3. Take positive action with ample time in accordance with the Steering and Sailing Rules to achieve a CPA of at least 1 .0 nm. 4. Make speed or course changes that are large enough to be readily apparent to another vessel	Reward/ Penalty	Operational/ Functional	Full Mission Stimulator and Mini Bridge

Competence		KUP	Assessment Outcome	Performance Criteria	Performance Standard	Scoring Procedure	Level of Simulation	Methods of Assessment
					observing visually or by radar			
		.5 Knowledge of blind pilotage techniques	At the end of the assessment the candidate must be able to recognize and takes appropriate action to navigate the vessel	Clarity on the responsibility for the safety of navigation is defined at all times including periods when the master is on the bridge and while under pilotage	Recognizes the restricted visibility and takes appropriate action to navigate in restricted visibility in accordance with STCW Code Section A-VIII/2, Part 3, Paragraph 45 such as: 1. Determines the restricted visibility; 2. Notifies Master of restricted visibility; 3. Switches to hand steering; 4. Posts a proper lookout and turns the running lights on; 5. Adjusts the vessel's speed in accordance with Rule 6; 6. Sounds the required sound signals; 7. Sets the radar and/or ARPA on the appropriate scale to scan at long range for other vessels; 8. Plots all approaching targets on the radar or ARPA, if fit-ted; and 9. Uses radar or ARPA, if fitted, to obtain early warning of risk of collision	Reward/ Penalty	Operational/ Functional	Full Mission Stimulator and Mini Bridge

Competence	KUP	Assessment Outcome	Performance Criteria	Performance Standard	Scoring Procedure	Level of Simulation	Methods of Assessment
				and to determine the speed and direction of relative motion. Keep navigational watch as per IMO Table of Watch Keeping Arrangement and the notation on the chart where the presence of the Master and/ or pilot is required.			
	.6 The use of reporting in accordance with the General Principles for Ship Reporting Systems and with VTS procedures	At the end of the assessment the candidate must be able to establish and maintain communications with VTS	Maintenance of the proper records of the movements and activities relating to the navigation of the ship	a) Keeps the records such as: Establishes communication with a VTS; b) Provides the initial information exchange as required by the VTS; c) Updates information during transit as required by the VTS; d) Closes communications with the VTS as the vessel departs the VTS jurisdiction	Reward/ Penalty	Operational/ Functional	Full Mission Stimulator and Mini Bridge
	C2.2 Bridge Resource Management	At the end of the assessment the candidates must be able to manage	Allocation and assignment of tasks to other	Notifies the Master immediately on the following situation:			

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		Knowledge of bridge resource management principles, including: .1 allocation, assignment and prioritization of resources .2 effective communication .3 assertiveness and leadership .4 obtaining and maintaining situational awareness .5 consideration of team experience	available bridge resources	members of bridge team	1. Vessel encounters or expects to encounter restricted visibility; 2. There is cause for concern because of vessel traffic density or the movements of other ships; 3. Vessel will transit restricted waters with vessel traffic; or 4. Fatigued to the point that decision making is affected. The candidate assigns the bridge team duties, considering their background, experience and abilities to the following tasks: 1. Conning; 2. Look out; 3. Collision avoidance; 4. Navigation; 5. Communication; and 6. Administration			

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C3	**Use of radar and ARPA to maintain safety of navigation** **Note:** Training and assessment in the use of ARPA is not required for those who serve exclusively on ships not fitted with ARPA. This limitation shall be reflected in the endorsement issued to the seafarer concerned	**Radar Navigation** **C3.1 Knowledge of the fundamentals of RADAR and Automatic RADAR Plotting Aids (ARPA)**	This KUP is demonstrated if the candidate has successfully passed the theoretical examination in the MARINA Competency Assessment System under Competence 3, KUP .1.1 – Knowledge of the fundamentals of RADAR and Automatic RADAR Plotting Aids (ARPA).					
		C3.2 Ability to operate and to interpret and analyze information obtained from RADAR, including the following: Performance, including: 1. factors affecting performance and accuracy 2. setting up and maintaining displays 3. detection of misinterpretation of information, false echoes, sea return, etc., RACONs and SARTs	At the end of the assessment the candidate must be able to operate and to interpret and analyze information obtained from radar and ARPA to maintain safety of navigation	Correctness of the setting up and adjustment of controls	Execute within 3 minutes after the power is turned on the following: 1. Switches the set from standby to transmit; 2. Selects the appropriate scale; 3. Adjusts the gain control so that targets and sea return appear; 4. Adjusts the tune control (if the unit is not self-tuning); 5. Adjust the brilliance control; 6. Adjusts the sea clutter and rain clutter controls to suppress the rain and sea clutter without losing targets; 7. Selects the north-up stabilized relative motion; and	Penalty/ Reward	Management/ Operational	Full Mission Stimulator and Mini Bridge

Competence		KUP	Assessment Outcome	Performance Criteria	Performance Standard	Scoring Procedure	Level of Simulation	Methods of Assessment
					8. Recognize and correctly identifies RACON and SART			
		Use including: .1 range and bearing; course and speed of other ships; time and distance of other ships; effect of changes	At the end of the assessment the candidate must be able to use range and bearing; course and speed of other ships; time and distance of other ships; effect of changes	Timely decisions to amend course and or speed are in accordance with accepted navigation practice Adjustments made to the ship's course and speed maintain safety of navigation	Determines the range and bearing to an object Range is within ± 0.1 nm of the assessor's solution or ± 1% of the range scale in use; and Bearing is within ± 1 degree			
		.2 identification of critical echoes; detecting course and speed changes of other ships; effect of changes in own ship's course or speed or both	At the end of the assessment the candidate must be able to identify critical echoes; detect course and speed changes of other ships	Determination if risk of collision or danger of collision exists with all approaching vessels	Identifies all approaching vessels whose bearings do not change appreciably and vessel that have a CPA of less than 3nm The candidate makes all determination within 6 minutes of determining the initial range and bearing of each vessel			

Competence		KUP	Assessment Outcome	Performance Criteria	Performance Standard	Scoring Procedure	Level of Simulation	Methods of Assessment
		.3 application of the International Regulations for Preventing Collisions at Sea, 1972, as amended	At the end of the assessment the candidate must be able to apply the International Regulations for Preventing Collisions at Sea, 1972, as amended	Determination of the target vessel's relative motion by changing own ship's course/speed reduction in accordance with the COLREGS	1. determines the new course to steer to achieve a 2nm CPA; 2. execute a turn to a starboard; 3. achieves a CPA of not less than 1.5 nm or not more than 2.2 nm and 4. execute a speed reduction			
		.4 plotting techniques and relative and true motion concepts	At the end of the assessment the candidate must be able to plot techniques and relative and true motion concepts	Determination of the true course and speed of at least three target vessels	1. construct a relative triangle by the use of maneuvering board or a transfer plotting sheet; 2. solves for target vessel's true course and speed within 6 minutes; and 3. determines the true course within ± 5 degrees and the true speed within ± 5 knots			
		.5 parallel indexing	At the end of the assessment the candidate must be able to use parallel indexing techniques	Usage of parallel index line to continuously monitor and maintain the vessel on track	1. Construct a parallel index line through the edge of the known hazard to navigation 2. Monitors the vessel's movement by referring to the relative position of the parallel index relative to the land mass or other radar conspicuous target; and			

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					3. ensures the vessel drifts not more than 10% of the set distance towards the known hazard			
		C3.3 Principal types of ARPA, their display characteristics, performance standards and the dangers of over-reliance of ARPA	This KUP is demonstrated if the candidate has successfully passed the theoretical examination under Competence 3, KUP .3 – Ability to operate and to interpret and analyze information obtained from ARPA.					
		C3.4 Ability to operate and to interpret and analyze information obtained from ARPA including; .1 system performance and accuracy, tracking capabilities and limitations, and processing delays .2 use of operational warnings and system tests	At the end of the assessment the candidate must be able to use radar and ARPA to maintain safety of navigation	Usage of radar and ARPA control knobs to maintain safety of navigation	Execute within 3 minutes the following: 1. Turns the power on; 2. Initializes the performance monitor; 3. Notes error messages; 4. Switches from standby to on; 5. Selects the appropriate scale; 6. Adjusts the gain control and sea return appear; 7. Adjust the tune control 8. Adjust the brilliance control 9. Adjust the sea clutter and rain clutter control to suppress the rain and sea clutter without losing targets;	Penalty/ Reward	Management/ Operational	Full Mission Stimulator and Mini Bridge

Competence		KUP	Assessment Outcome	Performance Criteria	Performance Standard	Scoring Procedure	Level of Simulation	Methods of Assessment
		3 methods of target acquisition and their limitations 4 true and relative vectors, graphic representation of target information and danger areas .5 deriving and analyzing information, critical echoes, exclusion areas and trial manoeuvres			10. Selects display north-up stabilized relative motion; 11. Selects proper gyro course and speed input; and 12. Select sea-stabilized mode.			
	C4 Use of ECDIS to maintain the safety of navigation	**C4.1 Navigation Using ECDIS** **Knowledge of the capability and limitations of ECDIS operations, including:**	At the end of the assessment the candidate must be able to use ECDIS to maintain safety of navigation					
		.1 a thorough understanding of Electronic						

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		Navigation Chart (ENC) data, data accuracy, presentation rules, display option and other chart data formats .2 the dangers of over-reliance .3 familiarity with the functions of ECDIS required by performance standards in force	**This KUP is demonstrated by successfully passing the theoretical examination.**					
		.2 a thorough understanding of Electronic Navigation Chart (ENC) data, data accuracy, presentation rules, display option and other chart data		Monitors information on ECDIS in a manner that contributes to safe navigation	Monitoring of at least three (3) types of information on ECDIS in a manner that contributes to safe navigation such as: a. standard display b. display base c. all other inf d. information such as spot soundings, submarine cables and pipelines, ferry routes, details of all			

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		formats			isolated dangers, details of aids to navigation, contents of cautionary notes, ENC edition date, geodetic datum, magnetic variation, graticule, place names			
		.2 the dangers of over-reliance			1. The limitations of ECDIS as a navigational tool; 2. potential risk of improper system functioning of the system; 3. system limitations, including those of its sensors; 4. hydrographic data inaccuracy, limitations of vector and raster electronic charts (ECDIS vs RCDS and ENC vs RNC); and 5. potential risk of human errors. Emphasis should be placed on the need to keep a proper look-out and to perform periodical checking, especially of the ship's position, by ECDIS-independent methods.			
		.3 familiarity with the functions of ECDIS required by		Knowledge of the limitations of the equipment and	Emphasized during the assessment the following factors:			

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		performance standards in force		detection of misrepresentation of information is essential for the safe use of ECDIS.	a) performance standards of the equipment; b) radar data representation on an electric chart, elimination of discrepancy between the radar image and electronic chart; c) possible projection discrepancies between an electronic and paper charts; d) possible scale discrepancies between an electronic and paper charts; e) effects of using different reference systems for positioning; f) effects of using different horizontal and vertical datums; g) effects of motion of the ship in a seaway; h) ECDIS limitations in raster chart display mode; i) potential errors in the display of:			

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					1) the own ship's position 2) radar data and ARPA and AIS information 3) different geodetic coordinate systems; j) verification of the results of manual or automatic data correction; 1) comparison of chart data and radar picture and 2) checking the own's ship's position by using the other independent position-fixing systems.			
		C4.2 Proficiency in operation, interpretation, and analysis of information obtained from ECDIS, including .1 use of	At the end of the assessment the candidate must be proficient in the operation, interpretation, and analysis of information obtained from ECDIS	Correctness of interpretation of the information obtained from ECDIS	Operate ECDIS where RADAR/ARPA, speed log, GPS, eco sounder, anemometer, gyro compass and VDRare connected: a) connect RADAR/ARPA to ECDIS; b) indicate target's speed vectors;			

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		functions that are integrated with other navigation systems in various installations, including proper functioning and adjustments to desired settings			c) indicate target's tracks; d) achieve target's tracks; e) view the table of the targets; f) check alignment of radar overlay with charted geographic features; g) simulate one or more manoeuvres; h) make corrections to own ship's position, using a reference point captured by ARPA; and i.) make corrections using the ARPA's cursor and electronic bar. Use of ECDIS by setting up and maintaining display: a) obtain the optimum display of ECDIS information; b) select display presentation (standard display, display			

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					base, all other information displayed individually on demand; c) adjust all variable radar/ARPA display controls for optimum display of data; d) select of convenient configuration; e) selectas appropriate, required speed input to ECDIS; f) select the timescale of vectors; and g) checks position, radar/ARPA, compass, speed input sensors and ECDIS			
		.2 safe monitoring and adjustment of information, including own position, sea area display, mode and		Monitoring of information obtained from ECDIS in a manner that contributes to safe navigation	Use of ECDIS where AIS is connected: a) interface ECDIS with AIS; b) interpret AIS data; c) indicate target's speed vectors;			

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		orientation, chart data displayed, route monitoring, user-created information layer, contacts (when interfaced with AIS and/or RADAR tracking) and RADAR overlay functions (when interfaced) .3 confirmation of vessel position by alternative means			d) indicate target's tracks; and e) achieve target's tracks Use ECDIS by manual correction of ship's position and motion parameters: a) plot ship's position in dead-reckoning mode (when the satellite and radio navigation system receiver is switched off) b) plot ship's position, when automatically obtained coordinates are inaccurate; and			

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		.4 efficient use of setting to ensure conformance to operational procedures, including alarm parameters for anti-grounding, proximity to contacts and special areas, completeness of chart data and chart update status, and backup arrangements			c) course and speed values are obtained Interpret and react properly to at least four (4) of the following alarms: a) absence of the next chart in the ECDIS database; b) crossing a safety contour; c) exceeding cross-track limits; d) deviation from planned route; e) approaching a waypoint; f) approaching a critical point; g) discrepancy between calculated and actual time of arrival to a waypoint; h) information on under-scaling or over-scaling; i) approaching an isolated navigational danger or danger			

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					area; j) crossing a specified area; k) selecting a different geodetic datum; l) approaching other ships; m) watch termination; n) switching timer; o) system test failure; p) malfunctioning of the positioning system used in ECDIS; q) failure of dead reckoning; and r) inability to fix vessel's position using navigational system.			
		.5 adjustments of setting and values to suit the present conditions			Use of ECDIS by setting and maintaining display: a) obtain the optimum display of ECDIS information using			

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					the correct starting procedure; b) select display presentation (standard display, display base, all other information displayed individually on demand); c) adjustall variable ECDIS display controls for optimum display of data; d)select convenient configuration; e) select, as appropriate, the required speed input to ECDIS;			
		.6 situational awareness using ECDIS including safe water and proximity of hazards, set and drift, chart data and scale selection, suitability of route, contact detection and management,			Use of ECDIS by setting the detection and misrepresentation of information and proper action taken to avoid any of the following errors: a) ignoring over scaling of the display; b) uncritical acceptance of the own ship's position;			

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		and integrity of sensors		Safety of navigation is maintained through adjustments made to the ship's course and speed through ECDIS-controlled track-keeping functions (when fitted)	c) confusion of display mode; d) confusion of chart scale; e) confusion of reference systems; f) different models of presentation; g) different modes of vector stabilization; h) differences between true north and gyro north (radar) i.) using the same data reference system; j) using the appropriate charts scale; k) using the best-suited sensor to the given situation and circumstances l) entering the correct values of safety data; 1) the own ship's safety countour;	**Rubrics**		

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					2) safety depth (safewater) and 3) events m) proper use of all available data			
C5	**Respond to emergencies**	**5.1 Emergency Procedures** .1 Precautions for the protections and safety of passengers in emergency situations	This KUP is demonstrated if the candidate has successfully passed the theoretical examination in the MARINA Competency Assessment System Competence 5 – Respond to Emergency.					
		.2 Initial action to be taken following a collision or a grounding; initial	At the end of the assessment the candidate must be able to initial action to	Appropriateness of initial action in accordance with the urgency of	Act appropriately based on the urgency of situation and nature of emergency such as:	Penalty/ Reward	Management/ Operational	Full Mission Stimulator And Mini

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		damage assessment and control	be taken following a collision or a grounding; initial damage assessment and control	situation and nature of emergency	a) Collision 1. raise the alarm 2. inform the Master 3. establish contact with other vessel and exchange all relevant information 4. if possible, offer assistance to the other vessel 5. collect all facts about occurrence 6. make sure the logbook has been properly kept 7. do not erase any information on the working chart (times, positions, courses steered, logs, etc.) 8. ensure that the movement book is properly kept in ink 9. collect the course recorder printout and the printouts from telegraph recorders and the engine room 10. take particularly note of the exact time of the			Bridge

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					collision, the heading of the vessel at the time of the collision, the angle of blow by or to the other vessel, the speed of each vessel at the time of the collision, any alteration of speed and course prior to the collision 11. Update if necessary, vessel's position in radio room, satellite terminal and other automatic distress transmitters (GMDSS) 12. Sound bilges and tanks 13. Notify other vessels in the vicinity if required b) Grounding; 1. Stop engines immediately 2. Inform the Master 3. Sound general alarm 4. Watertight doors to be closed			

Competence		KUP	Assessment Outcome	Performance Criteria	Performance Standard	Scoring Procedure	Level of Simulation	Methods of Assessment
					5. VHF watch maintained on channel 16 6. Broadcast to other vessels 7. Sound signals, Light / Shapes to be exhibited especially important in case of fog) 8. Deck lighting switched on 9. Check position on chart 10. Take note of any valuable information (time, course steered, speed, log, eventual manoeuvres, etc.) 11. Sound bilges, tanks 12. Immediately take overboard soundings around vessel to check on what type of sandbank the ship is lying c) Initial damage assessment; 1. Inform Master			

Competence		KUP	Assessment Outcome	Performance Criteria	Performance Standard	Scoring Procedure	Level of Simulation	Methods of Assessment
					2. Reduce speed 3. Exhibit "Not under command" shapes or lights 4. Use minimum rudder angle 5. Manoeuvre ship according to the weather and external situation 6. Update vessel's position in radio room, satellite terminal and other automatic distress transmitters (GMDSS) 7. Check reason of the loss of stability 8. Sound bilges and tanks 9. Consider distress call 10. Consider abandon ship 11. Duly enter all decisions actions taken in logbook. d) Control of damage in case of heavy weather			

Competence		KUP	Assessment Outcome	Performance Criteria	Performance Standard	Scoring Procedure	Level of Simulation	Methods of Assessment
					1. Record position 2. Nature of damage 3. Sound tanks and bilges 4. Check damage to cargo 5. Check course and speed			
		.3 Appreciation of the procedures for rescuing persons from the sea, assisting a ship in distress, responding to emergencies in port	At the end of the assessment the candidate must be able to appreciate procedures for rescuing persons from the sea, assisting a ship in distress, responding to emergencies in port	Appropriateness of the procedures for rescuing persons from the sea, assisting a ship in distress, responding to emergencies that arise in port	Describes procedure for rescuing persons from the sea Describe procedure for assisting a ship in distress Describe procedure for responding to emergencies in port	Penalty/ Reward	Management/ Operational	Full Mission Stimulator And Mini Bridge
C6	**Respond to distress signal at sea**	**C6.1 Search and Rescue** .1 Knowledge of the contents of the International Aeronautical and Maritime Search	This KUP is demonstrated by successfully passing the theoretical examination for Radiocommunication at the Operational Level Competence 1, KUP 1 - Search and Rescue Radio Communications including procedure in the International Aeronautical and Maritime Search and Rescue (IAMSAR) Manual					

Competence		KUP	Assessment Outcome	Performance Criteria	Performance Standard	Scoring Procedure	Level of Simulation	Methods of Assessment
		and Rescue (IAMSAR) Manual						
C7	**Use the IMO Standard Marine Communication Phrases and use English in written and oral form**	**C7.1 English Language** .1 Adequate knowledge of the English language to enable the officer to use charts and other nautical publications, to understand meteorological information and messages concerning ship's safety and operation, to communicate with other ships, coast stations and VTS centres and to perform the officer's duties also with a multilingual crew,	This KUP is demonstrated if the candidate has successfully passed the theoretical examination in the MARINA Competency Assessment System Competence 7 – Use the IMO Standard Marine Communication Phrases and use English in written and oral form.					

Competence		KUP	Assessment Outcome	Performance Criteria	Performance Standard	Scoring Procedure	Level of Simulation	Methods of Assessment
		including the ability to use and understand the IMO Standard Maritime Communication Phrases (IMO SMCP)						
C8	**Transmit and receive information by visual signaling**	**C8.1 Visual Signaling** .1 Ability to use the International Code of Signals .2 Ability to transmit and receive, by Morse light, light signal SOS as specified in Annex IV of the International Regulations for Preventing Collisions at Sea, 1971, as amended, and appendix 1 of the International Code of Signals, and	At the end of the assessment the candidate must be able **t**ransmit and receive information by visual signaling	Success of communication within the operator's area of responsibility is consistent	Communicate successfully within the operator's area of responsibility by sending at least 3 of the following SOS signal specified in Annex IV of the COLREG's, 1972 as amended such as: a. a rocket parachute flare b. International Code Signal N.C. c. flames on the vessel d. a smoke signal giving off orange-coloured smoke e. Raising and lowering arms outstretched to each side f. SOS signal in the Morse Light	Penalty / Reward	Operational/ Functional	Full Mission Stimulator and Mini Bridge

Competence		KUP	Assessment Outcome	Performance Criteria	Performance Standard	Scoring Procedure	Level of Simulation	Methods of Assessment
		visual signaling of single letter signals as also specified in the International Code of Signals						
C9	**Maneuver the ship**	**C9.1 Ship Maneuvering and Handling** 1. Knowledge of the effects of deadweight, draught, trim, speed and under-keel clearance on turning circles and stopping distances	At the end of the assessment the candidate must have the knowledge of the effects of deadweight, draught, trim, speed and under-keel clearance on turning circles and stopping distances	Determination of the effects of deadweight, draught, trim, speed and under-keel clearance on turning circles and stopping distances	Determines how changes in the following will affect the ship's maneuvering characteristics: 1. deadweight 2. draught 3. trim 4. speed 5. under-keel clearance on turning circles 6. stopping distances (to develop scenarios for deep water and shallow water, two for each (depth zones can be used);	Reward/ Penalty	Operational/ Functional	Full Mission Stimulator and Mini Bridge
		2. Knowledge of the effects of wind and current on ship handling	At the end of the assessment the candidate must have the knowledge of the effects of wind and current on ship handling	Proper adjustment is made to the ships course and speed	Perform the following: 1. Execute at turn to port or starboard by more than 45° from the original heading by applying a minimum of 5 degrees	Reward/ Penalty	Operational/ Functional	Full Mission Stimulator and Mini Bridge

Competence	KUP	Assessment Outcome	Performance Criteria	Performance Standard	Scoring Procedure	Level of Simulation	Methods of Assessment
				and a maximum of 15 degrees of rudder 2. Ease off rudder as the ship approaches the new course; and 3. Maintain on the new course without overshooting the course by more than 5 degrees. 4. Adjust speed as necessary			
	3. Knowledge of maneuvers and procedures for the rescue of person overboard	At the end of the assessment the candidate will have a knowledge of maneuvers and procedures for the rescue of person overboard	Immediate initiation of an appropriate man over board procedure	Perform Williamson Turn or Anderson Turn (as appropriate in the following sequence): 1. Order full rudder to the side of the Man overboard; 2. Sound Man over board signal if other vessels are in sight; a) Simulate releasing the MOB buoy; b) Mark the ship's position on ARPA/GPS /ECDIS; c) Simulate a "Mayday" call on VHF notifying any vessels in vicinity of the Man overboard;			

Competence		KUP	Assessment Outcome	Performance Criteria	Performance Standard	Scoring Procedure	Level of Simulation	Methods of Assessment
					d) Complete the recovery turn; e) State that the rescue boat would be prepared for launching; and f) Reduce the speed and stop the vessel when on the reciprocal course, and within 0.1 nm of the MOB to begin the recovery/search.			
		4. Knowledge of squat, shallow-water and similar effects	At the end of the assessment the candidate will have a knowledge on squat, shallow-water and similar effects	Proper adjustment is made to the ships course and speed	Perform ship's maneuver by considering the effects of the following: a) deadweight; b) draft; c) trim; d) speed; e) under-keel clearance on turning circle and stopping distance; f) wind and current; and g) squat and shallow water			
		5. Knowledge of the procedures for anchoring and mooring	At the end of the assessment the candidate will have a knowledge on the procedures for	Conformance to the proper procedure on anchoring and mooring	Perform proper procedures for anchoring and mooring considering the following: A. Planning			

Competence		KUP	Assessment Outcome	Performance Criteria	Performance Standard	Scoring Procedure	Level of Simulation	Methods of Assessment
			anchoring and mooring		Determine the: 1. depth of water; 2. type of bottom; 3. wind and current; 4. bottom obstructions; 5. room to swing; 6. place to anchor; 7. courses and maneuver to the anchor site; and 8. desired final heading; B. Approach Ensure that the ship does not pass to windward or up current of any anchored vessel or hazard to navigation. C. Placement 1. slow approach is made to anchor site; 2. ship's position is checked by natural landmarks and aids forming ranges ahead and abeam; 3. vessel is stopped when in position on the approximate desired final heading; and			

Competence		KUP	Assessment Outcome	Performance Criteria	Performance Standard	Scoring Procedure	Level of Simulation	Methods of Assessment
					4. anchor is correctly dropped for the depth of water D. Laying out: 1. The ship is backed slowly; and 2. A length of chain 5 to 7 times the water depth is paid out slowly. E. Fetching up: 1. The ship is allowed to fetch up on the chain; and The ship rides on a final heading that is within 40° of the desired final heading			

Competence		KUP	Assessment Outcome	Performance Criteria	Performance Standard	Scoring Procedure	Level of Simulation	Methods of Assessment
FUNTION 2		**CARGO HANDLING AND STOWAGE AT THE OPERATIONAL LEVEL**						
C10	**Monitor the loading, stowage, securing, care during the voyage and the unloading of cargoes**	**C10.1 Cargo handling, stowage and securing** .1 Knowledge of the effect of cargo, including heavy lifts, on the seaworthiness and stability of the ship	At the end of the assessment, the candidate must be able to monitor loading of cargo within the acceptable longitudinal stress of the vessel.	Achievement of cargo operations in accordance with the cargo plans or other documents and established safety rules/regulations , equipment operating instructions and shipboard stowage limitations	Monitor cargo operation to conform with the approved loading sequence as follows: 1. Load cargo in Hold no.4,pump out WBT and TST 6&7 P/S and after peak tank; 2. Load cargo in Hold no. 2 pump out DB ballast and topside Tk 2&3 P/S and FPT; 3. Load cargo in Hold no.3 to full ;and 4. Load cargo in Hold no.4 to complete the loading operation. Monitor the cargo operations to ensure that the stability criteria are within the acceptable limits: 1. Mean draft between 9.25 to 9.55 meters to meet the accepted stability and international grain code; 2. Grain heeling moment 7300 - 12690 T*M; 3. Heel Angle for grain 4.74 – 5.59 degrees	Checklist	Operational/ Functional	Automatic Data Based Equipment

Competence	KUP	Assessment Outcome	Performance Criteria	Performance Standard	Scoring Procedure	Level of Simulation	Methods of Assessment
				4. Angle of Deck Edge Immersion (DEI); 17.68 – 18.55 degrees 5. Go not less than 0.15 meter; and 6. Trim not more than 1 meter by astern			
	.2 Knowledge of safe handling, stowage and securing of cargoes, including dangerous, hazardous and	At the end of the assessment, the candidate must have the Knowledge of safe handling, stowage and securing of cargoes, including dangerous, hazardous	Compliance of the handling of dangerous, hazardous and harmful cargoes with the international regulations and recognized standards and codes of safe practice	Monitor cargo operations to ensure compliance with international regulations and recognized standards and codes of safe working practice such as: 1. the vessel shall be provided with an approved Grain Loading Manual; 2. the vessel must be provided with Grain Loading Certificate issued by Classification Society; 3. the vessel must have an approved loading plan; and 4. the vessel must have an approved grain loading calculation form.			
	.3 ability to establish and maintain effective communication	At the end of the assessment the candidate must have the ability to establish	Effectiveness of communication	Ensure clear and consistent communications between ship to shore during cargo operations such as:			

Competence		KUP	Assessment Outcome	Performance Criteria	Performance Standard	Scoring Procedure	Level of Simulation	Methods of Assessment
		during loading and unloading	and maintain effective communication during loading and unloading		1. filling up ship – shore checklist; 2. establishing close communication with loading master using portable radio at designated channel; and 3. establishing close communication with the cargo officer throughout the operations			
C11	**Inspect and report defects and damage to cargo spaces, hatch covers and ballast tanks**	**C11.1 Knowledge and ability to explain where to look for damage and defects most commonly encountered** .1 loading and unloading operations .2 corrosion .3 severe weather conditions C11.2 Ability to state which parts of the ship shall be inspected each	This Competence is demonstrated if the candidate has successfully passed the theoretical examination in the MARINA Competency Assessment System Competence 11 – Inspect and report defects and damage to cargo spaces, hatch covers and ballast tanks					

Competence		KUP	Assessment Outcome	Performance Criteria	Performance Standard	Scoring Procedure	Level of Simulation	Methods of Assessment
		time in order to cover all parts within a given period of time C11.3 Identify those elements of the ship structure which are critical to the safety of the ship C11.4 State the causes of corrosion in cargo spaces and ballast tanks and how corrosion can be identified and prevented C11.5 Knowledge of procedure on how the inspections shall be carried out C11.6 Ability to explain how to ensure reliable detection of defects and damages						

Competence		KUP	Assessment Outcome	Performance Criteria	Performance Standard	Scoring Procedure	Level of Simulation	Methods of Assessment
		C11.7 Understanding the purpose of the “enhanced survey programme”						

Competence		KUP	Assessment Outcome	Performance Criteria	Performance Standard	Scoring Procedure	Level of Simulation	Methods of Assessment
FUNTION 3		**CONTROLLING THE OPERATION OF THE SHIP AND CARE FOR PERSONS ON BOARD AT THE OPERATIONAL LEVEL**						
C12	**Ensure compliance with pollution prevention requirements**	**C12.1 Prevention of pollution of the marine environment and anti- pollution procedures** .1 Knowledge of the precautions to be taken to prevent pollution of the marine environment .2 Anti-pollution procedures and all associated equipment .3 Importance of proactive measures to protect the marine environment	This Competence is demonstrated if the candidate has successfully passed the theoretical examination in the MARINA Competency Assessment System Competence 12 - Ensure compliance with pollution prevention requirements.					

Competence		KUP	Assessment Outcome	Performance Criteria	Performance Standard	Scoring Procedure	Level of Simulation	Methods of Assessment
C13	**Maintain seaworthiness of the ship**	**C13.1** **Ship stability** .1 Working knowledge and application of stability, trim and stress tables, diagrams and stress-calculating equipment .2 Understanding of fundamental actions to be taken in the event of partial loss of intact buoyancy .3 Understanding of the fundamentals of watertight integrity **C13.2** **Ship Construction**	This Competence is demonstrated if the candidate has successfully passed the theoretical examination in the MARINA Competency Assessment System Competence 13 – Maintain seaworthiness of the ship and the Practical Assessment under Competence 10 using the Automatic Data-based Equipment.					

Competence		KUP	Assessment Outcome	Performance Criteria	Performance Standard	Scoring Procedure	Level of Simulation	Methods of Assessment
		.1 General knowledge of the principal structural members of a ship and the proper names for the various parts						
C14	**Prevent, control and fight fires on board**	**C14.1** **Fire prevention and fire-fighting appliances** .1 Ability to organize fire drills .2 Knowledge of classes and chemistry of fire .3 Knowledge of fire-fighting systems	This Competence is demonstrated if the candidate has successfully completed the Training IMO Model Course 2.03 ATFF					

Competence		KUP	Assessment Outcome	Performance Criteria	Performance Standard	Scoring Procedure	Level of Simulation	Methods of Assessment
		.4 Knowledge of action to be taken in the event of fire, including fires involving oil systems						
C15	**Operate life-saving appliances**	**C15.1 Life-saving** .1 Ability to organize abandon ship drills and knowledge of the operation of survival craft and rescue boats, their launching appliances and arrangements, and their equipment, including radio life-saving appliances, satellite EPIRBs, SARTs, immersion suits and thermal protective aids	This Competence is demonstrated if the candidate has successfully completed the Training IMO Model Course 1.23 PSCRB					

Competence		KUP	Assessment Outcome	Performance Criteria	Performance Standard	Scoring Procedure	Level of Simulation	Methods of Assessment
C16	**Apply medical first aid on board ship**	**C16.1 Medical Aid** .1 Practical application of medical guides and advice by radio, including the ability to take effective action based on such knowledge in the case of accidents or illnesses that are likely to occur on board ship	This Competence is demonstrated if the candidate has successfully completed the Training IMO Model Course 1.14 MEFA					
C17	**Monitor compliance with legislative requirements**	**C17.1 Basic working knowledge of the relevant IMO conventions concerning safety of life at sea, security and protection of the marine environment**	This Competence is demonstrated if the candidate has successfully passed the theoretical examination in the MARINA Competency Assessment System Competence 17 – Monitor compliance with legislative requirements.					
C18	**Application of leadership and**	**C18.1 Working knowledge of shipboard personnel**	At the end of the assessment the candidate must have a working knowledge	Descriptions of the basic duties and responsibilities	Describes the duties and responsibilities of the following**:** 1. Master;	Rubrics	Management/ Operational	Full Mission Simulator

Competence	KUP	Assessment Outcome	Performance Criteria	Performance Standard	Scoring Procedure	Level of Simulation	Methods of Assessment
team working skills	**management and training**	of shipboard personnel management and training	of vessel personnel**.**	2. Deck department including: a) Chief Mate; b) Second Mate; c) Third Mate; d) Bosun e) Able Seamen;			
	C18.2 **A knowledge of related international maritime conventions and recommendations, and national legislation**	At the end of assessment, the candidate must be able to describe the basic international maritime conventions and national regulations	Descriptions of the basic international maritime conventions and national regulations	Describes the following: 1. International Convention for the Safety of Life at Sea (SOLAS); 2. International Ship and Port Facility Security Code (ISPS); 3. International Safety Management Code (ISM); 4. International Convention on Standards of Training, Certification and Watchkeeping for Seafarers 1978, as amended (STCW); 4. MARPOL 73/78 and its Annexes; 5. Oil Pollution Act of 1990 (OPA 90) and; 6. Onboard contracts, including POEA/CBA labor contracts.	Rubrics	Management/ Operational	Full Mission Simulator

Competence		KUP	Assessment Outcome	Performance Criteria	Performance Standard	Scoring Procedure	Level of Simulation	Methods of Assessment
		C18.3 **Ability to apply task and workload management, including:** .1 Planning and co-ordination .2 Personnel management .3 Time and resource constraints .4 Prioritization	At the end of assessment, the candidate must be able to perform the duties of an OIC-NW	Performance of the duties of an OIC-NW	Perform the following duties: 1. Preparation and scheduling the order of events in anticipation of the pilot boarding; 2. Check and relay helm orders as per Master's direction; 3. Using signal devices (flags, signal lights, radio communications, etc.) as directed by the Master; and 4. Delegating and calling out personnel so that equipment is safely rigged and/or unrigged as needed.	Rubrics	Operational/Management	Full Mission Stimulator and Mini Bridge
		C18.4 **Knowledge and ability to apply effective resource management:** .1 Allocation, assignment and prioritization of resources	At the end of assessment, the candidate must be able to supervise the ship's operations under the direction of the department head.	Supervision of various ship's operations under the direction of the department head.	Supervise the following duties under the direction of the department head: 1. Reviewing the work plan with the Chief Mate or Master; 2. Checking equipment to ensure operational readiness; 3. Tool box meeting with assigned crewmembers.	Rubrics	Operational/Management	Full Mission Stimulator and Mini Bridge

Competence		KUP	Assessment Outcome	Performance Criteria	Performance Standard	Scoring Procedure	Level of Simulation	Methods of Assessment
		.2 Effective communication on-board and ashore .3 Decisions reflect consideration of team experiences .4 Assertiveness and leadership, including motivation .5 Obtaining and maintaining situational awareness			4. Delegating tasks to each of the assigned crewmembers 5. Establishing and maintaining communications with bridge, team and shore personnel; 6. Showing situational awareness around the vessel including potential hazards that each team member may encounter; and 7. Actively managing the assigned crewmembers motivating them to work safely and efficiently while anticipating and mitigating any hazards.			
		C18.5 Knowledge and ability to apply decision-making requirements: .1 Situation and risk assessment .2 Identify and consider	At the end of assessment, the candidate must be able to supervise a fire or emergency team under the supervision of the team leader	Supervision of fire or emergency team under the supervision of the squad leader	Supervise the following duties under the direction of the team leader: 1. Briefs the team on the situation, the approach, and the procedures to be executed; 2. Assigns task to each crew members, briefing them about any special	Rubrics	Operational/Management	Full Mission Stimulator and Mini Bridge

Competence		KUP	Assessment Outcome	Performance Criteria	Performance Standard	Scoring Procedure	Level of Simulation	Methods of Assessment
		generated options .3 Selecting course of action **.4** Evaluation of outcome effectiveness			procedures or events that may concern them; 3. Verifies the assigned crewmembers to ensure that they are using personal protective equipment (PPE) correctly and appropriately; 4. Verifies the assigned crewmembers to ensure that they have brought the assigned equipment as per Muster list; 5. Executes the contingency plan to handle the emergency situation; and 6. Participates in de-briefing, presents the positive results, feedbacks 7. and makes recommendations to improve procedures			

Competence		KUP	Assessment Outcome	Performance Criteria	Performance Standard	Scoring Procedure	Level of Simulation	Methods of Assessment
C19	**Contribute to the safety of personnel and ship**	**C19.1 Knowledge of personal survival techniques**	This KUP is demonstrated if the candidate has successfully completed the Training under Marina Circular 2013-11 Annex III Refresher Training course for Personal Survival Techniques and Fire Prevention and Fire Fighting					
		C19.3 Knowledge of elementary first aid	This KUP is demonstrated if the candidate has successfully completed the IMO Model Course 1.14 – Medical First Aid					
		C19.4 Knowledge of personal safety and social responsibilities	This KUP is demonstrated if the candidate has successfully completed the Training under Marina Circular 2013-11 Annex IV Updating Training course for Personal Safety and Social Responsibility.					