

BSMT STCW Competences Map

Competence		Knowledge Understanding and Proficiency																NAV 1	SEAM 1	COLREGS	MET-O	NAV 2	SEAM 2	NAV 3	NAV 4	NAV 5	NAV 6	D-WATCH	SEAM 3	TRIMSTAB	SEAM 4	SEAM 5	MARLAW	MAR ENV	MAR COM	MGMT 1	MGMT 2	ICT	MARPOW	SDSD	BT
TABLE A-II/1 FUNCTION: NAVIGATION AT THE OPERATIONAL LEVEL																																									
1	Plan and conduct a passage and determine position	<i>Celestial navigation</i>																																							
		1	Ability to use celestial bodies to determine the ship's position																																						
		<i>Terrestrial and coastal navigation</i>																																							
		2	Ability to determine the ship's position by use of: .1 landmarks .2 aids to navigation, including lighthouses, beacons and buoys, .3 dead reckoning, taking into account winds, tides, currents and estimated speed																																						
		3	Thorough knowledge of and the ability to use nautical charts and publications, such as sailing directions, tide tables, notices to mariners, radio navigational warnings and ship's routeing information																																						
		<i>Electronic systems of position fixing and navigation</i>																																							
		4	Ability to determine the ship's position by use of electronic navigational aids																																						
		<i>Echo-sounders</i>																																							
		5	Ability to operate the equipment and apply the information correctly																																						
<i>Compass – magnetic and gyro</i>																																									
6	Knowledge of the principles of magnetic and gyro-compasses																																								
7	Ability to determine errors of the magnetic and gyro-compasses, using celestial and terrestrial means, and to allow for such errors																																								
<i>Steering and control systems</i>																																									
8	Knowledge of steering control systems, operational procedures and change-over from																																								



	9	manual to automatic control and vice versa. Adjustment of controls for optimum performance						✓															
		Meteorology																					
	10	Ability to use and interpret information obtained from shipborne meteorological instruments						✓															
	11	Knowledge of the characteristics of the various weather systems, reporting procedures and recording systems						✓															
	12	Ability to apply the meteorological information available						✓															
2		<i>Watchkeeping</i>																					
	1	Thorough knowledge of the content, application and intent of the International Regulations for Preventing Collisions at Sea, 1972, as amended						✓															
	2	Thorough knowledge of the Principles to be observed in keeping a navigational watch																					
	3	The use of routeing in accordance with the General Provisions on Ship's Routeing																					
	4	The use of information from navigational equipment for maintaining a safe navigational watch																					
	5	Knowledge of blind pilotage techniques																					
	6	The use of reporting in accordance with the general principles for a ship reporting system and with VTS procedures																					
	7	<i>Bridge resource management</i> Knowledge of the bridge resource management principles, including: .1 allocation, assignment, and prioritization of resources .2 effective communication .3 assertiveness and leadership .4 obtaining and maintaining situational .5 consideration of team experience																					
3		<i>Radar navigation</i>																					
	1	Knowledge of the fundamentals of radar and automatic radar plotting aids (ARPA)																					
	2	Ability to operate and to interpret and analyse information obtained from radar, including the following: Performance, including;																					

	<ul style="list-style-type: none"> .1 factors affecting performance and accuracy .2 setting up and maintaining displays .3 detection of misrepresentation of information, false echoes, sea return, etc., racons and SART <p>Use, including:</p> <ul style="list-style-type: none"> .1 range and bearing; course and speed of other ships; time and distance of closest approach of crossing, meeting overtaking ships .2 identification of critical echoes; detecting course and speed changes of other ships; effect of changes in own ship's course or speed or both <p>.3 application of the International Regulations for Preventing Collisions at Sea, 1972, as amended</p> <p>.4 plotting techniques and relative- and true-motion concepts</p> <p>.5 parallel indexing</p> <p>3 Principal types of ARPA, their display characteristics, performance standards and the dangers of over-reliance on ARPA</p> <p>4 Ability to operate and to interpret and analyse information obtained from ARPA, including:</p> <ul style="list-style-type: none"> .1 system performance and accuracy, tracking capabilities and limitations, and processing delays .2 use of operational warnings and system tests .3 methods of target acquisition and their limitations .4 true and relative vectors, graphic representation of target information and danger areas .5 deriving and analysing information, critical echoes, exclusion areas and trial manoeuvres 																				
4	Use of ECDIS to maintain the safety of navigation	<p><i>Navigation using ECDIS</i></p> <p>1 Knowledge of the capability and limitations of ECDIS operations, including:</p> <ul style="list-style-type: none"> .1 a thorough understanding of Electronic Navigational Chart (ENC) data, data accuracy, presentation rules, display options and other chart data formats 																		✓	✓

		.2 the dangers of over-reliance .3 familiarity with the functions of ECDIS required by performance standards in force																	
	2	Proficiency in operation, interpretation, and analysis of information obtained from ECDIS, including: .1 use of functions that are integrated with other navigation systems in various installations, including proper functioning and adjustment to desired settings .2 safe monitoring and adjustment of information, including own position, sea area display, mode and orientation, chart data displayed, route monitoring, user-created information layers, contacts (when interfaced with AIS and/or radar tracking) and radar overlay functions (when interfaced) .3 confirmation of vessel position by alternative means .4 efficient use of settings to ensure conformance to operational procedures, including alarm parameters for anti-grounding, proximity to contacts and special areas, completeness of chart data and chart update status, and backup arrangements .5 adjustment of settings and values to suit the present conditions .6 situational awareness while using ECDIS including safe water and proximity of hazards, set and drift, chart data and scale selection, suitability of route, contact detection and management, and integrity of sensors																	
5	Respond to emergencies	<i>Emergency procedures</i>								✓									
	1	Precautions for the protection and safety of passengers in emergency situations																	
	2	Initial action to be taken following a collision or a grounding; initial damage assessment and control																	
	3	Appreciation of the procedures to be followed for rescuing persons from the sea, assisting a ship in distress, responding to emergencies which arise in port																	



6	Respond to a distress signal at sea	1	<i>Search and rescue</i> Knowledge of the contents of the International Aeronautical and maritime Search and Rescue (IAMSAR) Manual																										
7	Use the IMO Standard Marine Communication Phrases and use English in written and oral form	1	<i>English language</i> Adequate knowledge of the English language to enable the officer to use charts and other nautical publications, to understand meteorological information and messages concerning ship's safety and operation, to communicate with other ships, coast stations and VTS centres and to perform the officer's duties also with a multilingual crew, including the ability to use and understand the IMO Standard Marine Communication Phrases (IMO SMCP)		✓													✓											
8	Transmit and receive information by visual signalling	1	<i>Visual signalling</i> Ability to use the International Code of Signals		✓																								
		2	Ability to transmit and receive, by Morse light, distress signal SOS as specified in Annex IV of the International Regulations for Preventing Collisions at Sea, 1972, as amended, and appendix 1 of the International Code of Signals, and visual signalling of single-letter signals as also specified in the International Code of Signals		✓																								
9	Manoeuvre the ship	1	<i>Ship manoeuvring and handling</i> Knowledge of: .1 the effects of deadweight, draught, trim, speed and under-keel clearance on turning circles and stopping distances .2 the effects of wind and current on ship handling .3 manoeuvres and procedures for the rescue of person overboard .4 squat, shallow-water and similar effects .5 proper procedures for anchoring and mooring																✓										

TABLE A-II/1 FUNCTION: CARGO HANDLING AND STOWAGE AT THE OPERATIONAL LEVEL



6	Monitor compliance with legislative requirements	1 Basic working knowledge of the relevant IMO conventions concerning safety of life at sea, security and protection of the marine environment									✓			✓	
7	Application of leadership and teamworking skills	<p>1 Working knowledge of shipboard personnel management and training</p> <p>2 A knowledge of related international maritime conventions and recommendations, and national legislation</p> <p>3 Ability to apply task and workload management including: .1 Planning and coordination .2 Personnel assignment .3 Time and resource constraints .4 Prioritization</p> <p>4 Knowledge and ability to apply effective resource management: .1 Allocation, assignment and prioritization of resources .2 Effective communication on board and ashore .3 Decisions reflect consideration of team experiences .4 Assertiveness and leadership, including motivation .5 Obtaining and maintaining situational awareness</p> <p>5 Knowledge and ability to apply decision-making techniques: .1 Situation and risk management .2 Identify and consider generated options .3 Selecting course of action .4 Evaluation of outcome effectiveness</p>											✓		
8	Contribute to the safety of personnel and ship	<p>1 Knowledge of personal survival techniques</p> <p>2 Knowledge of fire prevention and ability to fight and extinguish fires</p> <p>3 Knowledge of elementary first aid</p> <p>4 Knowledge of personal safety and social responsibilities</p>													
TABLE A-IV/2 FUNCTION: RADIOCOMMUNICATIONS AT THE OPERATIONAL LEVEL															
1	Transmit and receive	1 In addition to the requirements of the Radio Regulations, a knowledge of:									✓				



1	Contribute to the safe operation of deck equipment and machinery	1	Knowledge of deck equipment, including: .1 function and uses of valves and pumps, hoists, cranes, booms and related equipment .2 function and uses of winches, windlasses, capstans and related equipment .3 hatches, watertight doors, ports and related equipment .4 fibre and wire ropes, cables and chains, including their construction, use, markings, maintenance and proper stowage .5 ability to use and understand basic signals for the operation of equipment, including winches, windlasses, cranes and hoists .6 ability to operate anchoring equipment under various conditions, such as anchoring, weighing anchor, securing for sea, and in emergencies	✓																
		2	Knowledge of the following procedures and ability to: .1 rig and unrig bosun's chairs and staging .2 rig and unrig pilot ladders, hoists, rat-guards and gangways .3 use marlin spike seamanship skills, including the proper use of knots, splices and stoppers	✓																
		3	Use and handling of deck and cargo-handling gear and .1 access arrangements, hatches and hatch covers, ramps, side/bow/stern doors or elevators .2 pipeline systems – bilge and ballast suction and wells .3 cranes, derricks, winches	✓																
2	Apply occupational health and safety precautions	1	Working knowledge of safe working practices and personal shipboard safety including: .1 working aloft .2 working over the side .3 working in enclosed spaces .4 permit to work systems .5 line handling .6 lifting techniques and methods of preventing back injury .7 electrical safety .8 mechanical safety .9 chemical and biohazard safety .10 personal safety equipment	✓																

TABLE A-II/5 FUNCTION: MAINTENANCE AND REPAIR AT THE SUPPORT LEVEL

3	Contribute to shipboard maintenance and repair	1	Ability to use painting, lubrication and cleaning materials and equipment	✓																	
		2	Ability to understand and execute routine maintenance and repair procedures																		
		3	Knowledge of surface preparation techniques																		
		4	Understanding manufacturer's safety guidelines and shipboard instructions																		
		5	Knowledge of safe disposal of waste materials																		
		6	Knowledge of the application, maintenance and use of hand and power tools																		

STCW Competences Map for Bachelor of Science in Marine Transportation (BSMT)

