



DEMOCRATIC SOCIALIST REPUBLIC OF SRI LANKA

MERCHANT SHIPPING SECRETARIAT

Ministry of Ports & Civil Aviation

No.79, Technical Junction, Maradana Road, Colombo 10, Sri Lanka

Telephone: +94(0)112435127, Fax: +94-(0) 112430277, E-mail: dmsmos@slt.net.lk

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01. Ship Construction (Total number of hours - 42)

REF. No.	COMPETENCE	KNOWLEDGE, UNDERSTANDING & PROFICIENCY		TIME ALLOCATION (Hrs)	STCW REF
1.1	Manoeuvre and handle a ship in all conditions	1.1.1	Use of propulsion and manoeuvring systems		116
		1.1.1.1	Use of propulsion and manoeuvring systems including various types of rudder		
1.2	Control trim, stability and stress	1.2.1	Understanding of fundamental principles of ship construction and the theories and factors affecting trim and stability and measures necessary to preserve trim and stability		120
		1.2.1.1	Ship building materials		
		1.2.1.2	Welding		
		1.2.1.3	Bulk heads		
		1.2.1.4	Watertight and weathertight doors (Explains the general design and construction features of SOLAS compliant vessels in terms of watertight integrity)		
		1.2.1.5	Corrosion and its prevention		
		1.2.1.6	Surveys and dry-docking		

02. Engineering knowledge (Total number of hours - 42)

REF. No.	COMPETENCE	KNOWLEDGE, UNDERSTANDING & PROFICIENCY		TIME ALLOCATION (Hrs)	STCW REF
2.1	Operate remote controls of propulsion plant and engineering systems and services	2.1.1	Operating principles of marine power plants		117
		2.1.2	Ship's auxiliary machinery		
		2.1.3	General knowledge of marine engineering systems		
		2.1.3.1	Marine engineering terms and fuel consumption		



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REF.	COMPETENCE	KNOWLEDGE, UNDERSTANDING & PROFICIENCY	TIME ALLOCATED	STCW Page 2 of 15 REF
No.				

		2.1.4	Arrangements necessary for appropriate and effective engineering watches to be maintained for the purpose of safety under normal circumstances and UMS operations		
		2.1.5	Arrangements necessary to ensure a safe engineering watch is maintained when carrying dangerous cargo		

03. Meteorology (Total number of hours - 42)



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				N (HRS)	
3.1	Forecast weather and oceanographic conditions	3.1.1	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		115
		3.1.1.1	Synoptic and prognostic charts and forecasts from any source		
		3.1.1.2	Range of information available		
		3.1.1.3	Weather Forecasting		
		3.1.2	Knowledge of the characteristics of various weather systems, including tropical revolving storms and avoidance of storm centres and the dangerous quadrants		115
		3.1.2.1	Tropical revolving storms		
		3.1.2.2	Main types of floating ice, their origins and movements		
		3.1.2.3	Conditions leading to ice accretion on ship's superstructures, dangers and the remedies available		
		3.1.3	Knowledge of ocean current systems		115
		3.1.3.1	Surface water circulation of the ocean and principal adjoining seas		
		3.1.3.2	Voyage planning principles with respect to weather conditions and wave height		
		3.1.3.3	Formation of sea waves and swell waves		



04. Business and law (Total number of hours - 84)

REF. No.	COMPETENCE	KNOWLEDGE, UNDERSTANDING & PROFICIENCY		TIME ALLOCATION (Hrs)	STCW REF
4.1	Plan & ensure safe loading, stowage, securing, care during the voyage & unloading of cargoes	4.1.1	Knowledge of & ability to apply relevant international regulations, codes & standards concerning the safe handling, stowage, securing & transport of cargoes		118
		4.1.1.1	Compliance with the minimum freeboard requirements of the Load Line Regulations		
		4.1.2	Stowage and securing of cargoes on board ship's, including cargo-handling gear and securing and lashing equipment	6.0	
		4.1.2.1	Procedures for receiving, and delivering cargo		
4.2	Monitor & control compliance with legislative requirements and measures to ensure safety of life at sea, security and the protection of the marine environment	4.2.1	International maritime law embodied in international agreements and conventions		120
		4.2.1.1	Certificates and other documents required to be carried on board ships by international conventions		
		4.2.1.2	Responsibilities under the relevant requirements of the International Convention on Load Lines		
		4.2.1.3	Responsibilities under the relevant requirements of the International Convention for the Safety of Life at Sea		
		4.2.1.4	Maritime declarations of health and the requirements of the International Health Regulations		
		4.2.1.5	Responsibilities under other international maritime law embodied in international agreements and conventions that impact on the role of management level deck officers	27.0	
		4.2.1.6	Methods and aids to prevent pollution of the marine environment by ships		



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05. Electronic Navigation Systems (ENS) (Total number of hours - 126)

REF. No.	COMPETENCE	KNOWLEDGE, UNDERSTANDING & PROFICIENCY		TIME ALLOCATION (Hrs)	STCW REF
5.1	Determine position and the accuracy of resultant position fix by any means	5.1.1	Using modern electronic navigational aids, with specific knowledge of their operating principles, limitations, sources of error, detection of misrepresentation of information and methods of correction to obtain accurate position fixing		112
		5.1.2	Integrated Navigation system (INS) and Integrated Bridge system (IBS)		
5.2	Determine and allow for compass errors	5.2.1	Knowledge of the principles of magnetic and gyro-compasses		113
		5.2.1.1	Parts of the magnetic compass and their function		
		5.2.1.2	Errors of the magnetic compass and their correction		
		5.2.1.3	Principles of gyrocompass		
		5.2.1.4	Gyrocompass errors and corrections		113
		5.2.2	An understanding of systems under the control of the master gyro and a knowledge of the operation and care of the main types of gyro-compass		
5.3	Establish watchkeeping arrangements and procedures	5.3.1	Bridge watchkeeping equipment and systems		113
		5.3.1.1	Knowledge of voyage data recorders (VDR) and bridge navigational watchkeeping alarm systems (BNWAS) Voyage data recorder (VDR) and simplified voyage data recorder (S-VDR) Bridge navigational watch alarm system (BNWAS)		



06. Leadership & Team Working Skills (Total number of hours - 21)

REF. NO.	COMPETENCE	KNOWLEDGE, UNDERSTANDING & PROFICIENCY		TIME ALLOCATION (Hrs)	STCW REF
6.1	Use of Leadership and Managerial Skill	6.1.1	Personnel management, organization and training on board ship		122
		6.1.1.1	Shipboard personnel management		
		6.1.1.2	Training		
		6.1.2	Related international conventions recommendations, and national legislation		
		6.1.2.1	Related international maritime conventions and national legislation		
		6.1.3	Application of task and workload management		
		6.1.3.1	Task and workload management		
		6.1.4	Effective resource management		
		6.1.4.1	Application of effective resource management at a management level		
		6.1.5	Decision-making techniques		
		6.1.5.1	Situation and risk assessment		
		6.1.5.2	Identify and generate options		
		6.1.5.3	Selecting course of action		
		6.1.5.4	Evaluation of outcome effectiveness		
		6.1.6	Development, implementation and oversight of standard operating procedures		



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07. Watch Keeping & Orals (Total number of hours - 84)

REF. No.	COMPETENCE	KNOWLEDGE, UNDERSTANDING & PROFICIENCY		TIME ALLOCATION (Hrs)	STCW REF
7.1	Establish watch keeping arrangements & procedures	7.1.1	Thorough knowledge of content, application and intent of the International Regulations for Preventing Collisions at Sea, 1972, as amended		113
7.2	Respond to navigational emergencies	7.2.1	Precautions when beaching a ship		115
		7.2.2	Actions to be taken if grounding is imminent and after grounding		
		7.2.3	Refloating a grounded ship with and without assistance		
		7.2.4	Action to be taken if collision is imminent, and following a collision or impairment of the watertight integrity of the hull by any cause		
		7.2.5	Assessment of damage control		
		7.2.6	Emergency steering		
		7.2.7	Emergency towing arrangements and towing procedures		
7.3	Manoeuvring & handling a ship in all conditions	7.3.1	Approaching pilot stations and embarking or disembarking pilots, with due regard to weather, tide, headreach and stopping distances		116
		7.3.2	Handling ship in rivers, estuaries and restricted waters having regard to the effects of current, wind and restricted water on helm response		
		7.3.3	Application of constant rate of turn techniques		
		7.3.4	Manoeuvring in shallow water including the reduction in under-keel clearance caused by squat, rolling and pitching		
		7.3.5	Interaction between passing ships and between own ship and nearby banks (canal effect)		
		7.3.6	Berthing and unberthing under various conditions of wind, tide and current with and without tugs		
		7.3.7	Ship and Tug interaction		
		7.3.8	Use of propulsion and manoeuvring systems		



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			including various types of rudder		
		7.3.9	Choice of anchorage; anchoring with one or two anchors in limited anchorages and factors involved in determining the length of anchor cable to be used		
		7.3.10	Procedures for anchoring in deep water and in shallow water		
		7.3.11	Dragging anchor; clearing fouled anchors		
		7.3.12	Management and handling ships in heavy weather, including assisting a ship or aircraft in distress; towing operations; means of keeping an unmanageable ship out of a sea trough; lessening drift and use of oil		
		7.3.13	Precautions in manoeuvring to launch rescue boats and survival craft in bad Weather		
		7.3.14	Methods of taking on board survivors from rescue boats and survival craft		117
		7.3.15	Ability to determine the manoeuvring and propulsion characteristics of common types of ships, with special reference to stopping distances and turning circles at various draughts and speeds		
		7.3.16	Importance of navigating at reduced speed to avoid damage caused by own ship's bow and stern waves		
7.4	Assess reported defects & damage to spaces, hatch covers & ballast tanks & take appropriate action	7.4.1	Limitations on strength of the vital constructional parts of a standard bulk carrier and interpret given figures for bending moments and shear forces		119
		7.4.2	Methods to avoid the detrimental effects on bulk carriers of corrosion, fatigue and inadequate cargo handling		
7.5	Maintain safety & security of the ship's crew & passengers & the operational condition of life saving fire fighting & other safety systems	7.5.1	Life saving appliance regulations (SOLAS)		121
		7.5.2	Organization of fire and abandon ship drills		
		7.5.3	Maintenance of operational condition of life-saving, fire fighting and other safety systems		
		7.5.4	Actions to protect and safeguard all persons on board in emergencies		
		7.5.5	Actions to limit damage and save the ship following a fire, explosion, collision or grounding		



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7.6	Develop emergency and damage control plans and handle emergency situations	7.6.1	Preparation of contingency plans for response to emergencies		
		7.6.2	Ship construction, including damage control		
		7.6.3	Methods and aids for fire-prevention, detection and extinction <i>Advanced fire fighting</i>		
		7.6.4	Functions and use of life-saving appliances <i>Proficiency in survival craft and rescue boats (other than fast rescue boats)</i>		
7.7	Organize and Manage the Provision Of Medical Care on Board	7.7.1	Use and content of the following publications:		123
		7.7.1.1	International Medical Guide for Ships		
		7.7.1.2	International Code of Signals (Medical Section)		
		7.7.1.3	Medical First Aid Guide for Use in Accidents Involving Dangerous Goods		



08. Ship Board Operations (Total number of hours - 126)

REF. No.	COMPETENCE	KNOWLEDGE, UNDERSTANDING & PROFICIENCY		TIME ALLOCATION (Hrs)	STCW REF
8.1	Manoeuvre and handle a ship in all conditions	8.1.1	Dry-docking, both with and without damage		116
		8.1.1.1	Dry docking		
8.2	Plan and ensure safe loading, stowage, securing, care during the voyage and unloading of cargoes	8.2.1	Knowledge of and ability to apply relevant international regulations, codes and standards concerning the safe handling, stowage, securing and transport of cargoes		118
		8.2.1.1	Plans and actions conform with international regulations		
		8.2.2	Use of stability and trim diagrams and stress-calculating equipment, including automatic data-based (ADB) equipment, and knowledge of loading cargoes and ballasting in order to keep hull stress within acceptable limits		118
		8.2.2.1	Knowledge of loading cargoes and ballasting in order to keep hull stress within acceptable limits		
		8.2.3	Stowage and securing of cargoes on board ships, including cargo-handling gear and securing and lashing equipment		118
		8.2.3.1	Timber deck cargoes		
		8.2.3.2	Care of cargo during carriage		
		8.2.3.3	Requirements applicable to cargo handling gear		
		8.2.3.4	Maintenance of cargo gear		
		8.2.3.5	Maintenance of hatch covers		
		8.2.4	Loading and unloading operations, with special regard to the transport of cargoes identified in the Code of Safe Practice for Cargo Stowage and Securing		118
		8.2.4.1	Loading, stowage and discharge of heavy weights		
		8.2.4.2	Care of cargo during carriage		
		8.2.4.3	Methods and safeguards when Fumigating Holds		
		8.2.5	General knowledge of tankers and tanker operations		118



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		8.2.5.1	Terms and definitions		
		8.2.5.2	Contents and application of the International Safety Guide for Oil Tankers and Terminals (ISGOTT)		
		8.2.5.3	Oil tanker operations and related pollution prevention regulations		
		8.2.5.4	Chemical tankers		
		8.2.5.5	Tank cleaning and control of pollution in chemical tankers		
		8.2.5.6	Gas tankers		
		8.2.5.7	Cargo operations in gas tankers		
		8.2.6	Knowledge of the operational and design limitations of bulk carriers		118
		8.2.6.1	Operational and design limitations of bulk carriers		
		8.2.6.2	SOLAS, chapter XII Additional safety measures for bulk carriers		
		8.2.6.3	CSR Bulk		
		8.2.7	Ability to use all available shipboard data related to loading, care and unloading of bulk cargoes		118
		8.2.7.1	Application of all available shipboard data related to loading, care and unloading of bulk cargoes		
		8.2.7.2	Code of practice for the safe loading and unloading of bulk carriers (BLU Code)		
		8.2.8	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		118
		8.2.8.1	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		
		8.2.9	Ability to explain the basic principles for establishing effective communications and improving working relationship between ship and terminal personnel		118



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		8.2.9.1	Basic principles for establishing effective communications and improving working relationships between ship and terminal personnel		
8.3	Carriage of dangerous goods	8.3.1	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		119
		8.3.1.1	International regulations and codes		
		8.3.2	Carriage of dangerous, hazardous and harmful cargoes; precautions during loading and unloading and care during the voyage		119
		8.3.2.1	Dangerous goods in packages		
		8.3.2.2	Solid bulk cargoes		
		8.3.2.3	International Code for the Safe Carriage of Grain in Bulk (International Grain Code)		
8.4	Monitor and control compliance with legislative requirements and measures to ensure safety of life at sea, security and the protection of the marine environment	8.4.1	Knowledge of international maritime law embodied in international agreements and conventions		120
		8.4.1.1	Responsibilities under the International Convention for the Prevention of Pollution from Ships, as amended		
		8.4.1.1.1	Responsibilities under the International Convention for the Prevention of Pollution from Ships, 1973, and the Protocol of 1978 relating thereto (MARPOL 73/78)		
		8.4.2	Responsibilities under international instruments affecting the safety of the ship, passengers, crew and cargo		120
		8.4.2.1	Ballast water Convention 2004		



09. Navigation (Total number of hours - 126)

REF. No.	COMPETENCE	KNOWLEDGE, UNDERSTANDING & PROFICIENCY		TIME ALLOCATION (Hrs)	STC W REF
9.1	Plan a voyage and conduct navigation	9.1.1	Voyage planning and navigation for all conditions by acceptable methods of plotting ocean tracks		112
		9.1.1.1	Voyage planning for all conditions including vessel traffic service (VTS) areas		
		9.1.1.2	Navigation and monitoring of the voyage		
		9.1.1.3	Logbooks and voyage records		
		9.1.2	Routeing in accordance with the General Provisions on Ships' Routeing		
		9.1.2.1	Routeing		
		9.1.3	Reporting in accordance with the General principles for Ship Reporting Systems and with VTS procedures		
		9.1.3.1	Ship reporting systems		
9.2	Determine position and the accuracy of resultant position fix by any means	9.2.1	Position determination in all conditions:		112
		9.2.1.1	by celestial observations		
		9.2.1.2	by terrestrial observations, including the ability to use appropriate charts, notices to mariners and other publications to assess the accuracy of the resulting position fix		
9.3	Establish watchkeeping arrangements and procedures	9.3.1	Thorough knowledge of the content, application and intent of the Principles to be observed in keeping a navigational watch		113
9.4	Forecast weather and oceanographic conditions	9.4.1	Knowledge of the characteristics of various weather systems, including tropical revolving storms and avoidance of storm centres and the dangerous quadrants		115
		9.4.1.1	Guiding principles relating to the safety of navigation in ice		
		9.4.2	Ability to calculate tidal conditions		
		9.4.3	Use all appropriate nautical publications on tides and currents		



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		9.4.3.1	Nautical publications and information which can be obtained via internet and email on tides and currents		
9.5	Manoeuvre and handle a ship in all conditions	9.5.1	Practical measures to be taken when navigating in or near ice or in conditions of ice accumulation on board		117
		9.5.2	Use of, and manoeuvring in and near, traffic separation schemes and in vessel traffic service (VTS) areas		

10. Stability (Total number of hours - 84)

REF. NO.	COMPETENCE	KNOWLEDGE, UNDERSTANDING & PROFICIENCY		TIME ALLOCATION (Hrs)	STCW REF
10.1	Manoeuvre and Handle a Ship in all Conditions	10.1.1	Dry-docking, both with and without damage	6.0	116
10.2	Plan and Ensure Safe Loading, Stowage, Securing, Care During the Voyage and Unloading of Cargoes	10.2.1	Effect on trim and stability of cargoes and cargo operations		118
		10.2.1.1	Draught, trim and stability	15.0	
		10.2.2	Use of stability and trim diagrams and stress-calculating equipment including automatic data-based equipment and knowledge of loading cargoes and ballasting in order to keep hull stress within acceptable limits		
		10.2.2.1	Shear forces, bending moments and torsional moments	8.0	
		10.2.2.2	Use of automatic data-based (ADB) equipment	1.0	
10.3	Assess Reported Defects and Damage to Cargo Spaces, Hatch Covers and Ballast Tanks and take appropriate action	10.3.1	Interpret given figures for bending moments and shear forces	3.0	119
10.4	Control trim, stability & stress	10.4.1	Fundamental principles of ship construction, trim and stability		120
		10.4.1.1	Stability	30	



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		10.4.2	Effect on trim and stability in the event of damage and flooding	12	
		10.4.2.1	Effect of flooding on transverse stability and trim		
		10.4.3	Theories affecting trim and stability	6.0	
		10.4.4	Knowledge of IMO recommendations concerning ship stability		
		10.4.4.1	Responsibilities under the international conventions and codes	3.0	