



**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](mailto:dmsmos@slt.net.lk)

**1. PLAN AND CONDUCT A PASSAGE AND DETERMINE POSITION**

**1.1 Ability to use celestial bodies to determine the ship's position (2.00 hrs)**

- a) Calculates PL by means of Sun's meridian passage
- b) Calculates PL by means of Sun's intercept method
- c) Calculates PL by means of star's intercept method

**1.2 Ability to determine the ship's position by use of: (8.00 hrs)**

- 1.2.1 landmarks
- 1.2.2 aids to navigation, including lighthouses, beacons and buoys
- 1.2.3 dead reckoning, taking into account winds, tides, currents and estimated speed
  - a) practice position fixing by means of terrestrial objects
  - b) practice position fixing by taking into account the wind and current
  - c) calculates course to steer when experiencing wind and current
  - d) briefly explain the passages planning theories
  - e) carryout passage planning exercises

**1.3 Thorough knowledge of and ability to use nautical charts, and publications, such as sailing directions, tide tables, notices to mariners, radio navigational warnings and ship's routing information (3.00 hrs)**

- a) States the annual publications
- b) Demonstrates ability to carryout charts and publications corrections
- c) Demonstrates ability to identify the charts and publications which require for a particular passage
- d) Demonstrates ability refer Admiralty chart catalogue, Ocean passages for the world, List of radio signals, Sailing directions
- e) Calculates tidal heights



**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](mailto:dmsmos@slt.net.lk)

- 1.4 Ability to determine errors of the magnetic and gyro-compasses, using celestial and terrestrial means, and to allow for such errors **(2.00 hrs)**
- a) Calculates compass error by Sun's amplitude method
  - b) Calculates compass error by means of Sun's azimuth method
  - c) Calculates compass error by means of Star's azimuth methods
  - d) Calculates compass error by means of transit bearing lines
- 1.5 Knowledge of bridge equipment **(1.00 hrs)**
- a) Describes the switching on procedure of a radar and the testing method by means of a performance monitor
  - b) Describes the steering gear testing procedure
  - c) Describes the testing procedure of an auto pilot and also the associated alarms
  - d) States the change over procedure from auto pilot to manual steering and vice versa
- 1.6 Ability to use and interpret information obtained from ship borne meteorological instruments **(1.50 hrs)**
- a) States the approaching signs of a TRS
  - b) Demonstrates ability read a weather fax and predicts the weather
- 1.7 Ability to apply the meteorological information available **(1.00 hrs)**
- a) Describes the actions to take to avoid a TRS
- 2. MAINTAIN A SAFE NAVIGATIONAL WATCH**
- 2.1 Thorough knowledge of the contents, application and intent of the International Regulations for Preventing Collisions at Sea, 1972, as amended **(1.00 hrs)**
- a) Demonstrates ability to identify various light signals and shapes according to COLREGS
  - b) Demonstrates ability to take appropriate actions in various situations according to COLREGS



**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](mailto:dmsmos@slt.net.lk)

- 2.2 Thorough knowledge of IALA buoyage system **(0.50 hrs)**  
a) Demonstrates ability to identify buoys according to IALA buoyage system
- 2.3 Knowledge of blind pilotage techniques **(0.50 hrs)**  
a) Demonstrates ability to set up blind pilotage technique on a radar
- 3. RESPOND TO EMERGENCIES**
- 3.1 Initial action to be taken following a collision or a grounding; initial damage assessment and control **(1.50 hrs)**  
a) Explains in detail the initial actions to take after a collision and state how do you carry out the initial damage assessment and control  
b) Explains in detail the initial actions to take after a grounding
- 3.2 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 **(1.50 hrs)**  
a) Explains how do you prepare your vessel to assist a vessel in distress and rescue people from the sea  
b) States the actions to take in case of an oil pollution in a port
- 4. RESPOND TO A DISTRESS SIGNAL**
- 4.1 Knowledge of the contents of the International Aeronautical and Maritime Search and Rescue (IAMSAR) Manual **(1.00 hrs)**  
a) Demonstrates ability to refer IAMSAR manual and list the contents
- 5. MANOEUVRE THE SHIP**
- 5.1 Knowledge of:



**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](mailto:dmsmos@slt.net.lk)

5.1.1 The effects of deadweight, draught, trim, speed and under keel clearance on turning circles and stopping distances **(1.00 hrs)**

a) States the effects of the following, on ship's turning circle and stopping distance;

- i) Deadweight
- ii) Draught
- iii) Trim
- iv) Speed and
- v) Under keel clearance

5.1.2 Manoeuvres and procedures for the rescue of person overboard **(0.50 hrs)**

a) Describes the actions to take in case of a man over board including manoeuvring of the vessel

5.1.3 Squat, shallow-water and similar effects **(0.50 hrs)**

- a) States how do you come to know when a vessel is experiencing squat
- b) States how do you calculate the squat
- c) With the aid of diagrams show the interactions between vessels when overtaking and passing in reciprocal courses

**6. MONITOR THE LOADING STOWAGE, SECURING, CARE DURING THE VOYAGE AND THE UNLOADING OF CARGOES**

6.1 Knowledge of the effects of cargo, including heavy lifts, on the seaworthiness and stability of the ship **(1.00 hrs)**

- a) Lists the precautions to take when loading heavy lifts
- b) Describes the effects of slack tanks on ship's stability

6.2 Knowledge of safe handling stowage and securing of cargoes, including dangerous, hazardous and harmful cargoes, and their effect on the safety of life and of the ship **(3.00 hrs)**



**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](mailto:dmsmos@slt.net.lk)

- a) Lists the hazards of carrying timber on deck
- b) Lists the hazards involved in carrying heavy density cargoes in bulk and the precautions to take
- c) Describes the dangers involved in carrying bulk cargoes with low and high angles of repose
- d) Demonstrates ability to refer a ship's lashing manual
- e) Demonstrates ability to refer IMDG Code
- f) Describes the precautions to take when loading IMDG cargoes
- g) Demonstrates ability to refer IMSBC Code
- h) Describes the grain securing methods
- i) States the stability criteria to be fulfilled when carrying grain in bulk
- j) Lists the hazards involved in carrying coal cargoes in bulk and the precautions to take.
- k) States the stability criteria to be fulfilled to make a vessel seaworthy when carrying timber on deck according to the timber Code
- l) States the precautions to take during loading, loaded passage, discharging and tank cleaning on oil tankers.
- m) States the procedure of gas freeing

**7. INSPECT AND REPORT DEFECTS AND DAMAGE TO CARGO SPACES, HATCH COVERS AND BALLAST TANKS**

7.1 Knowledge and ability to explain where to look for damage encountered due to: **(1.00 hrs)**

7.1.1 loading and unloading operations

- a) Lists the items/areas to check for damage encountered due to loading and unloading operations

7.1.2 Corrosion

- a) Lists the items/areas to check for damage encountered due to corrosion

7.1.3 severe weather conditions

- a) Lists the items/areas to check for damage encountered due to severe weather conditions

7.2 Identify those elements of the ship structure which are critical to the safety of the ship **(1.00 hrs)**



**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](mailto:dmsmos@slt.net.lk)

a) Lists the elements of the ship structure which are critical to the safety of the ship

7.3 Understanding of the purpose of the “enhanced survey programme” (1.00 hrs)

a) Briefly explains the purpose of the “enhanced survey programme”

**8. ENSURE COMPLIANCE WITH POLLUTION PREVENTION REQUIREMENTS**

8.1 Knowledge of the precautions to be taken to prevent pollution of the marine environment (1.50 hrs)

- a) States the discharge regulations of MARPOL Annex – I pollutants and the special areas
- b) States the discharge regulations of MARPOL Annex – II pollutants and the special areas
- c) States the discharge regulations of MARPOL Annex – III pollutants
- d) States the discharge regulations of MARPOL Annex – IV pollutants and the special areas
- e) States the discharge regulations of MARPOL Annex – V pollutants and the special areas
- f) Briefly explains the MARPOL Annex – IV including the identified pollutants, their controlling methods and the special areas
- g) Lists the ballast water exchange methods available
- h) States the ballast water discharged regulations according to the ballast water convention

8.2 Anti-pollution procedures and all associated equipment (0.50 hrs)

- a) Describes the precautions to take during bunkering
- b) Briefly explains about the SOPEP and list down its contents

**9. MAINTAIN SEAWORTHINESS OF THE SHIP**

9.1 Working knowledge and application of stability, trim and stress tables, diagrams and stress-calculating equipment (8.00 hrs)

- a) Describes the behaviour of the COG of a vessel during loading, discharging and transferring of weights



**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@sltnet.lk](mailto:dmsmos@sltnet.lk)

- b) Differentiates between tender ships and stiff ships
- c) Explains the three equilibriums of a vessel
- d) States the effects of Free surface effect on ship's stability
- e) Demonstrates ability to refer a stability booklet
- f) States how a vessel may develop an angle of loll and it's correcting procedure
- g) States the IMO stability criteria to become a vessel seaworthy
- h) Calculates the KG of a vessel after multiple loading and discharging
- i) Calculates the final draughts after completion of loading and discharging operations
- j) Calculates the list and how to correct it

**10. MONITOR COMPLIANCE WITH LEGISLATIVE REQUIREMENTS**

- 10.1 Basic working knowledge of the relevant IMO conventions concerning safety of life at sea, security and protection of the marine environment **(2.00 hrs)**
- a) Briefly describes the ISM Code
  - b) Briefly describes the ISPS Code
  - c) Briefly describes the MLC 2006
  - d) Briefly describes the following Conventions;
    - i. Intervention Convention
    - ii. SOLAS Convention
    - iii. STCW Convention

**11. KNOWLEDGE OF PRECAUTIONS TO TAKE DURING DRY DOCKING AND KNOWLEDGE OF PREPARING A VESSEL FOR DRY DOCKING**  
**(1.00 hrs)**

- a) Lists the documents and the plans required to be presented to a dock authority before going to the dock.
- b) Explains how do you prepare a vessel for dry docking



**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](mailto:dmsmos@slt.net.lk)

- c) Explains the safety precautions to be taken while in a dry dock
- d) Explains the precautions and the actions to be taken before flooding a dock

**12. PRECAUTIONS AGAINST EXTREME WEATHER CONDITIONS AND OTHER ONBOARD OPERATIONS (1.00 hrs)**

- a) Describes how to prepare a vessel for heavy weather
- b) Describes cold weather precautions
- c) Describes how to prepare a bridge for arrival port
- d) Describes how to prepare a bridge for departure
- e) Describes how to prepare a deck for departure
- f) Describes the enclosed space entry procedure

**13. BRM, LEADERSHIP & TEAMWORK (1.50hrs)**

- a) Briefly explains about BRM
- b) Lists and explain the elements of BRM
- c) Identify the persons who comprise the bridge team
- d) Explains attitude and its importance in the Skills, Knowledge and Attitude (SKA's) of management
- e) State the levels of management on vessels
- f) Describes three roles of a manger – Interpersonal, Information and Decisional
- g) Describes the characteristics of the various leadership styles
- h) Discuss how the team approach is used on the bridge
- i) Discuss the benefit of using the team approach
- j) Discuss ways in which delegation of task and responsibilities can be accomplished
- k) States that the duties should be clearly and unambiguously assigned to specific individuals, who should confirm that they understand their responsibilities



**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](mailto:dmsmos@slt.net.lk)

**14. AMENDMENTS TO INTERNATIONAL CONVENTIONS, CODE & GUIDE LINES**

**(4.50 hrs)**

- a) States and describes the amendments to SOLAS
- b) States and describes the amendments to MARPOL
- c) MLC 2006
  - i) States the reasons for introducing MLC 2006
  - ii) Describes the five titles briefly
  - iii) States the master's responsibilities
  - iv) States the company responsibilities
  - v) Lists the certificates to be carried on board according to the Convention
  - vi) Describes the PSC inspection procedure
- d) States and describes the amendments to other international Conventions, Codes & guide lines when applicable

**15. AMENDMENTS TO LOCAL LEGISLATIONS & LATEST M NOTICES**

**(2.00 hrs)**

- a) Describes the implementations and amendments introduced through Sri Lankan Merchant Shipping Notices
- b) Describes the recent implementations and amendments to the Sri Lankan legislation relevant to personal safety, pollution prevention, security and navigational safety in the marine field

**16. INNOVATIONS, UPDATES & CHANGES TO MARINE INDUSTRY**

**(1.50 hrs)**

- a) Describes the latest innovations, updates & changes relevant to marine industry
- b) Describes the concept of e-Loran
- c) Describes the GALILEO satellite system
- d) Explains the parametric rolling, effects and actions to take to reduce the effects of parametric rolling



**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](mailto:dmsmos@slt.net.lk)

**17. CASE STUDIES WHICH INCLUDES MINIMUM OF THREE DIFFERENT TOPICS (1.50 hrs)**

- a) Study and discuss the most recent cases relevant to:
  - i) Navigation, COLREGS & Watchkeeping
  - ii) Pollution
  - iii) Handling of cargoes
  - iv) Fire or explosion

**18. PIRACY & ARMED ROBBERY UPDATES (1.50 hrs)**

- a) By means of a chart shows the high piracy & armed robbery areas around the world
- b) Discuss the recent cases involving piracy & armed robbery incidents
- c) Discuss the latest systems introduced by shipping companies in tackling pirates
- d) Describes the latest BMP if updated recently