



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

DETAILED SYLLABI - CONTENTS

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1.1	Pilotage (3.00 hrs)
a)	states that the master and pilot should agree on regulations, plans and procedures for the intended voyage
b)	states that any special conditions of weather, tidal currents, depth or marine traffic which may be expected should be discussed
c)	states that the master should provide the pilot with the pilot card and make available the manoeuvring booklet or, in their absence, provide him with details of the ship's particulars and manoeuvring characteristics, including information on the ship's response to wind forces; special characteristics related to squat should be discussed
d)	states that the master should inform the pilot of any unusual handling characteristics, machinery difficulties or problems with navigational equipment which could affect the operation, handling or safe manoeuvring of the ship
e)	states that the pilot should give information on the intended use of tugs, if any

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f)	states that master and pilot should discuss, if applicable, special considerations concerning passing or overtaking of other vessels in narrow channels
g)	pilotage mistakes
1.2	Passage in fog and thick weather (1.50 hrs)
a)	describes the precautions to be taken during thick weather
1.3	Navigation in Coral Regions (1.50 hrs)
a)	explains the precautions to be taken during navigation through coral regions
1.4	Radar and blind pilotage (7.50 hrs)
a)	radar for Navigation
b)	radar in coastal waters

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c) assessment of the risk involved in a blind pilotage passage
d) parallel index technique
e) the conduct of blind pilotage
f) blind anchorages
1.5 Navigation accuracies (1.50 hrs)
a) definitions; accuracy, precision, Absolute position, Relative position, Repeatability
b) types of Errors
1.6 Bridge organization & procedures (1.50 hrs)
a) navigational safety

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b) bridge organization
c) principles of watch keeping arrangement for navigational watch
1.7 Ensuring the adequacy of a navigational watches (1.00 hrs)
a) states that the officer of the watch is responsible for navigating safely with particular regard to avoiding collision and stranding
b) lists factors to be taken into account when deciding the composition of the watch on the bridge
c) states that watch duties should be so arranged that the efficiency of watch-keepers is not impaired by fatigue
d) describes how the intended voyage should be planned in advance
e) states that the master should ensure that officers in charge of watches know the location and operation of all navigational and safety equipment and can take account of the operating limitations of such equipment

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f)	states that the officer in charge of a navigational watch should not be assigned or undertake any duties which would interfere with the safe navigation of the ship
g)	draws up standing orders reflecting the principles to be observed in keeping a navigational watch, as set out in regulation II/1 of STCW 1978, and the operational guidance for officers in charge of a navigational watch contained in resolution 1 of STCW Conference 1978, regarding:
i.	navigation
ii.	the use of navigational equipment, radar and automatic pilot
iii.	navigational duties and responsibilities and the circumstances in which to call the master
iv.	handing over and taking over the watch
v.	maintenance of an efficient look-out
vi.	actions to take in restricted visibility
vii.	navigation with pilot embarked
viii.	protection of the marine environment
ix.	duties of the officer of the watch while at anchor
1.8	Ensuring the adequacy of engineering watches (0.50 hrs)
a)	states that the chief engineer, in consultation with the master, shall ensure that watchkeeping arrangements are adequate to maintain a safe watch

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1.9	Recent Marine accidents investigation reports (6.00 hrs)
1.10	Masters role in collecting evidence (3.00 hrs)
a)	describes the correct maintenance of log books
b)	oil pollution incidents
c)	when stowaways are found
d)	when refugees are onboard
e)	in case of personal injuries
f)	in case of cargo claims
1.11	Magnetic Compass Error and Correction (9.00 hrs)
a)	explains how the ship's permanent magnetic field may be resolved into three components, designated P, Q and R
b)	explains how the ship's induced magnetism may be represented by soft iron rods
c)	defines the approximate coefficients A, B, C, D and E

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d) states the equation for the deviation on a given heading in terms of the coefficients
e) describes the conditions which give rise to each of the coefficients
f) explains the use of the approximate coefficients A, B, C, D and E
g) describes why coefficients A and E may exist at a badly sited compass
h) explains the non-magnetic causes of an apparent coefficient A
i) explains that coefficient B results partly from the ship's permanent magnetism and partly from induced magnetism
j) explains that induced magnetism may also contribute to coefficient C in a badly sited compass
k) describes how the deviation associated with the coefficient permanent B varies with magnetic latitude
l) describes how the deviation associated with the coefficient induced B varies with magnetic latitude

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m)	explains why the deviation due to permanent magnetism should be compensated by permanent magnets and that due to induced magnetism by spherical soft iron correctors, where possible
n)	describes the causes of heeling error and how it vary with heel, course and magnetic latitude
o)	describes the correction of heeling error and why the correction does not remain effective with change of magnetic latitude
p)	defines the constant I
q)	defines the constant m
r)	explains how the soft iron spheres increase the mean directive force towards magnetic north and that the value of X with the spheres in place is called the ship's multiplier
s)	describes the vertical force instrument and its use in correcting heeling error
t)	describes methods of obtaining a table of deviations

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u)	analyses a table of deviations to obtain approximate coefficients
v)	states that anything which could affect the deviation of the compass should be stowed in its sea-going position before correcting it
w)	carries out an adjustment of the compass by the tentative method and obtains a table of residual deviations
x)	states the order in which corrections should be made and explains why they are made in that order
y)	describes how heeling error may produce an unsteady compass on certain headings after a large change of magnetic latitude and how to deal with it
z)	explains why a large coefficient B may appear after a large change of magnetic latitude and how to correct it
aa)	describes how sub-permanent magnetism gives rise to retentive error
bb)	states that deviations may be affected by cargo of a magnetic nature, the use of electromagnets for cargo handling, or repairs involving hammering or welding of steelwork in the vicinity of the compass
cc)	states the requirements for the carriage of magnetic compasses as set out in SOLAS

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dd)	outlines the performance standards for magnetic compasses
ee)	explains the importance of keeping a record of observed deviations
ff)	practical procedure of Compass adjustment
1.12	Ship Handling
1.12.1	Handling a Ship in Rivers, Estuaries, etc., having regard to the Effects of current, Wind and Restricted Water on the Response to the Helm
	(7.5 hrs)
a)	defines shallow water as a depth of less than 1.5 times the ship's draught
b)	explains that shallow-water effects become more marked as the depth decreases
c)	lists shallow-water effects as:

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i.	increased directional stability
ii.	a large increase in turning radius
iii.	a more pronounced effect from transverse propeller thrust
iv.	the ship carries her way longer and responds slowly to changes in engine speed
v.	the speed falls less during turns
vi.	the trim changes, usually by the head for a full hull form
vii.	an increase in squat
d)	defines squat as the reduction of under-keel clearance resulting from bodily sinkage and change of trim which occurs when a ship moves through the water
e)	calculates the approximate sinkage due to squat in deep water
f)	states that the squat in shallow water (ratio of water depth/draught = 1.2) may be double that in deep water
g)	uses a squat estimation diagram
h)	explains the meaning of "blockage factor" in restricted channels
i)	explains how squat and trim effects increase with blockage factor

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j) describes the reduction in keel clearance resulting from rolling and pitching
k) describes the pattern of pressure changes round the hull of a moving ship
l) explains the interaction between a ship and nearby banks (bank cushion and bank suction)
m) describes the interaction between passing ships
n) describes how to pass or overtake another ship safely in a narrow channel
o) explains that shoal patches may give rise to bank cushion or suction, resulting in an unexpected sheer
p) states that speed should be moderate in rivers, estuaries, etc. to reduce
q) shallow-water effects and to provide reserve power for correcting a sheer
r) describes how to round bends in a channel with a current in either direction, taking account of the effect of wind

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s) describes the use of an anchor to assist in rounding a bend
t) describes how to turn short round in a narrow channel, with or without a wind
u) describes the use of an anchor to assist turning in a channel
v) explains the importance of navigating at reduced speed to avoid damage caused by own ship's bow wave or stern wave
w) describes how a passing ship affects a moored ship
x) entering shallow water
y) passage in fog and thick weather
z) navigation in Coral regions
1.12.2 Berthing and Unberthing under Various Conditions of Wind and Tide, with or without Tugs (6.00 hrs)

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a) describes the effects of right- and left-handed propellers on manoeuvring
b) describes the use of twin screws for manoeuvring
c) explains the advantages and disadvantages of controllable-pitch propellers with regard to ship handling
d) describes the use of lateral thrusters
e) states that lateral thrusters cease to be effective above a certain speed, which has to be determined by trial
f) describes, with reference to ship type and trim, the likely effect of wind on a ship when moving ahead or astern and when stopped
g) explains how an anchor or anchors may be used to assist in manoeuvring
h) describes the use of anchors for stopping in an emergency
i) describes the different ways in which tugs may be made fast and used

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j)	explains fully how to use engine, helm, tugs, anchors and mooring lines to berth and unberth under various conditions of wind and tide at:
i.	river berths
ii.	piers
iii.	locks
iv.	enclosed docks
v.	a single buoy
vi.	two buoys
vii.	multibuoy berths
viii.	mediterranean moorings
k)	details the mooring lines to be used, their leads and methods of securing at the berths listed
1.12.3	Anchoring (3.00hrs)
a)	explains how to choose an anchorage and lists the factors which influence the choice
b)	states that an anchoring plan should be prepared in advance, showing the direction and speed of approach and the dropping positions, with check bearings
c)	describes the preparation of anchors, including walking the anchor back for anchoring in deep water

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d) explains how to judge that the ship is stopped ready for letting go
e) explains that positions should be obtained on letting go and again when brought up
f) describes the use of anchor buoys
g) lists the factors to consider in determining the length of anchor cable to be used as:
i. the nature of the bottom
ii. the strength of current or wind
iii. the exposure of the anchorage to bad weather
iv. the amount of room to swing
v. the expected length of stay at anchor
h) defines dragging and explains how to detect it
i) describes the actions to take when the anchor starts to drag
j) explains how excessive yawing may break the anchor out of its holding and describes measures to control yaw

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k) describes how to bring a ship to an open moor
l) describes how to perform a dropping moor
m) describes how to perform a running moor
n) explains what is meant by a "foul hawse" and how it occurs
o) describes how to clear a foul hawse
p) describes how to clear a fouled anchor
q) describes how to buoy and slip an anchor
1.12.4 Management and Handling of Ships in Heavy Weather (3.00 hrs)
a) states that the use of weather Routing can reduce the number of occasions on which heavy weather is encountered

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b) describes the precautions to be taken before the onset of heavy weather
c) defines wavelength, period and period of encounter of waves and swell
d) defines rolling period and synchronous rolling
e) explains how synchronous rolling can be avoided by an alteration of speed or course to change the period of encounter
f) describes synchronous pitching and how to prevent it
g) describes how excessive speed into head seas can cause severe panting and slamming stresses
h) states that excessive slamming may be almost unnoticed on the bridge of a very large ship
i) explains that heavy pitching also gives rise to high longitudinal stresses, racing of the propeller and the shipping of water
j) defines "pooping" and describes the conditions in which it may occur

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k)	defines "broaching-to" and describes the conditions in which it may occur
l)	explains that a reduction in speed combined with an alteration of course can reduce the danger of broaching-to and of being pooped
m)	describes how to turn a ship in heavy seas
n)	states that a ship may be hove-to with the wind on the bow or on the quarter or stopped
o)	describes the circumstances in which each of the methods in objective 7.10 may be used
p)	describes methods of turning a disabled ship's head to keep it out of a sea trough and of lessening lee drift
q)	explains that a ship may drift at an angle to the downwind direction and that its direction of drift will depend upon which side it has the wind
r)	describes how to use oil to reduce breaking seas when hove-to and when manoeuvring in heavy seas
s)	describes actions which may be taken to prevent a ship being driven on to a lee shore

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t)	describes how to assist a ship or aircraft in distress
u)	describes towing operations
v)	explains the precautions to be taken in manoeuvring for launching boats or life rafts in bad weather
w)	describes the methods of taking on board survivors from lifeboats or life rafts

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2. METEOROLOGY – (30.0 HRS)

2.1 Weather forecasting (9.00 hrs)

- a) identifies a cold front, a warm front and an occlusion on a synoptic chart
- b) reads the codes on a synoptic chart
- c) identifies the air masses on a weather chart
- d) estimates the probable track directions of the various air masses
- e) estimates wind directions from the isobars on the weather chart
- f) calculates the wind forces from the isobars on the weather chart
- g) demonstrates analysis of a synoptic chart as a whole
- h) identifies areas of maximum waves
- i) estimates areas of expected precipitation or fog
- j) estimates areas of expected icing
- k) forecasts area weather from a synoptic chart as a whole
- l) interprets a prognostic chart of area weather
- m) explains the acquisition of weather information
- n) describes the weather forecasting tools
- o) describes the available onboard methods of weather forecasting
- p) explains weather forecasting using surface charts

2.2 Tropical Revolving Storms (6.00 hrs)

- a) describes the practical manoeuvring rules for avoiding the center of a tropical revolving storm

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2.3 Waves (3.00 hrs)

- a) distinguishes between waves and swell
- b) explains wave refraction in shallow water
- c) tsunami and abnormal waves
- d) ship handling in rough weather

2.4 Practical measures to be taken when navigating in Ice or conditions of ice accumulation on board (6.00 hrs)

- a) states that all possible information about ice located on or in the vicinity of the intended track should be obtained
- b) states that information is available from:
 - i. daily bulletins of the International Ice Patrol in the N. Atlantic
 - ii. ice warnings from countries where ice is a regular problem
 - iii. Hydrographic Office ice charts
 - iv. pilot books
 - v. facsimile ice charts
 - vi. warnings from other ships in the vicinity
- c) defines the following terms used in ice warnings:
 - i. solid ice
 - ii. soft ice
 - iii. drift ice
 - iv. pack ice
 - v. growler
 - vi. iceberg

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- d) states the master's obligation to report dangerous ice or sub-freezing air temperatures associated with gale-force winds causing severe ice accretion on superstructures
- e) states that, when ice is reported on or near the course, the master of every ship is bound to proceed at a moderate speed or to alter course so as to go well clear of the danger zone
- f) explains that radar may not detect small icebergs and growlers
- g) states that navigation marks may be removed without warning in coastal areas threatened by ice
- h) states that no attempt should be made to enter a region of thick ice in a ship not specially strengthened for navigation in ice

- i) lists precautions to take when entering ice as:
 - i. estimating the thickness and concentration of ice and assessing whether the ship can safely pass through it
 - ii. avoiding entry to pressure areas (shown by hummocks and rafting)
 - iii. following leads used by previous ships, where possible
 - iv. entering on the lee side of the ice, if practicable
 - v. entering at right angles to the ice edge, to avoid damage to hull, propeller and rudder
 - vi. approaching at as slow a speed as possible, and increasing the power to maintain headway when the bow contacts the ice
- j) explains that leads through the ice show well on radar when set to short range
- k) explains precautions to be taken to avoid damaging the propeller and rudder when maneuvering in ice
- l) explains how to obtain assistance from an ice-breaker
- m) states that it is important to follow the ice-breaker's instructions regarding speed and maneuvering
- n) states that fenders should be ready for use when negotiating sharp turns in leads
- o) describes the precautions which should be taken to prevent freezing up of tail-end shafts, deck machinery and services
- p) describes how to heave to in an ice field
- q) describes the need to keep a look-out, when hove-to at night, for large ice drifting through the pack
- r) states that soft ice may block seawater intakes
- s) describes the conditions in which ice accumulates on decks and superstructures

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- t) explains the dangers resulting from heavy accumulation of ice
- u) states that a change of course or speed should be made to reduce the shipping of freezing spray
- v) states that accumulated ice and snow should be cleared away as quickly as possible
- w) describes methods of clearing decks, rigging and superstructure of ice

2.5 Weather Routing (6.00 hrs)

- a) Uses information of current, prevailing wind, ice, etc. To select an optimum route
- b) Analyses weather predictions and wave charts to select the 'best' route
- c) Analyses weather predictions, including warnings of tropical storms, to evaluate possible deviation from the planned route
- d) Describes the weather routing services available to shipping

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3. BUSINESS & LAW – (91.5 HRS)

3.1 Ship management and operation (9.00 hrs)

- a) Explain the contractual relationships with the following parties:
 - i. The ship manager
 - ii. The master
 - iii. The crew
 - iv. The classification society
 - v. Port agents
 - vi. Suppliers, repairers, etc.
 - vii. Insurers and P&I
- b) Explain the basic ship owning company functions
- c) Explain basic cost classification of ships
- d) State that capital costs are fixed costs which mainly associated with ship purchases.
- e) State that voyage costs are variable costs which associated with the commercial operation of the ship.
- f) State that operation or running costs are semi variable costs which fall between capital and voyage costs.
- g) Explain the legislation relating to safe manning, hours of work and watch keeping as per MLC 2006 and STCW 2010
- h) Describe the miscellaneous provisions concerning manning

3.2 Law of the Sea (6.00 hrs)

3.21 Conventions on the law of the sea

- a) States that the law of the sea is embodied in the Geneva Conventions of 1958 and the United Nations Convention on the Law of the Sea, 1982 (UNCLOS)

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- b) Defines the legal status of UNCLOS
- c) Defines the legal status of the Geneva Conventions
- d) Defines pollution of the marine environment
- e) Defines dumping
- f) Defines force majeure

3.22 Territorial sea and the contiguous zone

- a) Describes the legal status of the territorial sea and its breadth
- b) Defines 'internal waters'
- c) Describes the legal status of roadsteads
- d) States the right of innocent passage
- e) Defines 'passage'
- f) Defines 'innocent passage'
- g) Lists matters on which coastal states laws or regulations may affect innocent passage
- h) States the obligations during innocent passage in a territorial sea
- i) States the obligations regarding the use of sea lanes and traffic separation schemes (TSS) in the territorial sea
- j) States the obligations of nuclear - powered ships and ships carrying dangerous or noxious substances
- k) Describes the additional rights of a coastal state regarding ships proceeding to internal waters or calling at a port facility
- l) Describes the charges which may be levied on ships passing through a territorial sea
- m) Describes the criminal jurisdiction of a coastal state on board a foreign ship passing through the territorial sea
- n) Explains the coastal state may take any steps authorized by its laws for the perform an arrest or investigation on board a foreign ship passing through the territorial sea after leaving internal waters
- o) Explains the coastal state's obligation to facilitate contact between the consular authority of the flag state and the ship's crew when taking measures to arrest a ship
- p) States that the coastal state may not take any steps to board a foreign ship passing through the territorial sea to arrest any person or to conduct any investigation in connection with any crime committed before the ship entered the territorial sea, if the ship proceeding from a foreign port, is only passing through the territorial sea without entering internal waters

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- q) Describes the civil jurisdiction of a coastal state on board a foreign ship passing through the territorial sea
- r) Describes the extent of the contiguous zone and the authority of a coastal state therein.

3.3 International straits (1.50 hrs)

- a) describes the legal status of waters forming straits used for international navigation
- b) states the right of transit passage
- c) defines 'transit passage'

- d) states the duties of ships in transit passage
- e) explains the meaning of generally accepted international regulations, procedures and practices'
- f) states the duty of ships in transit passage regarding sea lanes and TSS
- g) lists matters on which coastal States laws or regulations may affect transit passage
- h) states the obligations of ships during transit passage
- i) describes the application of innocent passage to straits used for international navigation
- j) defines 'archipelago'
- k) defines ' archipelagic State'
- l) states the right of innocent passage through archipelagic waters
- m) states that an archipelagic State may designate sea lanes through its waters
- n) describes how sea lanes should be defined and how ships should follow them
- o) states that an archipelagic State may designate TSS for any sea lanes
- p) states that ships must respect established sea lanes and TSS
- q) states that the laws and regulations which may be made by an archipelagic State relating to sea lanes and the obligations of ships during their passage are the same as those relating to the transit of international straits

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3.4 Exclusive economic zone and continental shelf (1.50 hrs)

- a) defines the exclusive economic zone and states its breadth
- b) defines the continental shelf
- c) states the coastal State's jurisdiction over artificial islands, installations and structures within its exclusive economic zone
- d) explains the establishment of safety zones around artificial islands, installations and structures and states the breadth of those zones
- e) states the obligations of ships regarding safety zones

3.5 High seas (1.50 hrs)

- a) states the freedom of the high seas
- b) explains the nationality of ships
- c) states that each State must issue to ships to which it has granted the right to fly its flag documents to that effect
- d) states that, except in exceptional circumstances, ships must sail under the flag of one State only and be subject to its exclusive jurisdiction
- e) explains that a ship may not change its flag during a voyage or while in a port call, save in case of real transfer of ownership or change of registry
- f) explains the status of ships regarding nationality
- g) describes the duties of the flag State with respect to ships flying its flag
- h) states that in taking such measures each State is required to conform to generally accepted international standards
- i) states that in the event of a collision or of any other incident of navigation concerning a ship on the high seas involving penal or disciplinary action of the master or of any other person in the service of the ship, no penal or disciplinary proceedings may be instituted against such persons except before the judicial or the administrative authorities of the flag State or of the State of which such a person is a national to.
- j) explains who may withdraw a master's certificate or a certificate of competence or license
- k) states that no arrest or detention of a ship, even as a measure of investigation, may be ordered by any authorities other than those of the flag State
- l) states that every State must require the master of a ship sailing under its flag, in so far as he can do so without serious danger to the ship, the crew or the passengers, to render assistance to any person found at sea in danger of being lost, to proceed with all possible speed to the rescue of persons in distress if informed of their need of assistance, in so far as such action may be responsibly expected of him, and, after a collision, to render assistance

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to the other ship, her crew and her passengers and, where possible, to inform the other ship of the name of his own ship, her port of registry and the nearest port at which she will call

- m) explains that the breaking or injury of submarine cables so as to interrupt or obstruct telegraphic or telephonic communications, and similarly the breaking or injury of a submarine pipeline or high-voltage power cable, is, except for the purpose of saving lives or ships, a punishable offence
- n) states that the owners of ships who can prove that they have sacrificed an anchor, a net or any other fishing gear in order to avoid injuring a submarine cable or pipeline should be indemnified by the owner of the cable or pipeline, provided that the owner of the ship has taken all reasonable precautionary measures beforehand

3.6 Protection and preservation of the marine environment (3.00 hrs)

- a) explains the rights of coastal States to adopt laws and regulations for the prevention, reduction and control of pollution in respect of their exclusive economic zones
- b) summarizes the enforcement by flag States of measures for the prevention, reduction and control of pollution from ships
- c) summarizes the enforcement by port States of measures for the prevention, reduction and control of pollution from ships
- d) states the measures relating to seaworthiness of vessels to avoid pollution
- e) summarizes the enforcement by coastal States of measures for the prevention, reduction and control of pollution from ships
- f) states the rights of states to take enforce measures beyond their territorial seas to avoid pollution arising from maritime casualties
- g) defines 'maritime casualty'
- h) explains that the United Nations Convention on the Law of the sea, 1982, will replace the Geneva Conventions on the Law of the sea, 1958, when it enters into force
- i) states that UNCLOS does not alter the rights and obligations of States Parties which arise from other agreements compatible with that Convention.

3.7 Registration of vessels (6.00 hrs)

- a) explains the requirements governing ship registration
- b) describes the UNCLOS and UNTAD provisions relating to ships flag and nationality

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- c) explains the types of ship registers used in ship registrations
- d) describes the provisions relating to duties of flag state according to UNCLOS including :
 - i. International maritime treaties
 - ii. Implementation and enforcement
 - iii. Supervision of surveys
 - iv. International Safety Management Code
 - v. Maritime security
 - vi. Seafarers' competence standards
 - vii. Employment standards
 - viii. Safe manning and seafarers' working hours
 - ix. Casualty investigations
 - x. Movement of ships between flags
 - xi. Repatriation of seafarers
 - xii. IMO Member State Audit Scheme
 - xiii. Participation at IMO and ILO meetings
 - xiv. Consultation with ship-owners

3.8 Surveying, Certification and documentation related to international conventions (30.00 hrs)

3.8.1 All ships to which the referenced convention applies

- a) International Tonnage Certificate(1969) – Tonnage Convention
- b) International Load Line Certificate – LL Convention,
- c) Coating Technical File –SOLAS1974, regulation II-1/3-2;
- d) Construction drawings –SOLAS1974, regulation II-1/3-7;
- e) Ship Construction File –SOLAS1974, regulation II-1/3-10;
- f) Intact stability booklet –SOLAS1974, regulations II-1/5
- g) Damage control plans andbooklets –SOLAS1974, regulation II-1/19

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- h) Minimum safe manning document –SOLAS1974, regulation V/14.2
- i) Fire safety training manual –SOLAS1974, regulation II-2/15.2.3
- j) Fire Control plan/booklet –SOLAS1974, regulations II-2/15.2.4
- k) Onboard training and drills record – SOLAS1974, regulation II-2/15.2.2.5
- l) Fire safety operational booklet –SOLAS1974, regulation II-2/16.2
- m) Maintenance Plans - SOLAS1974, regulations II-2/14.2.2
- n) Training manual - SOLAS1974, regulation III/35
- o) Nautical charts and nautical publications –SOLAS1974, regulations V/19.2.1.4 and V/27
- p) International Code of Signals and a copy of Volume III of IAMSAR Manual –SOLAS1974, regulation V/21
- q) Records of navigational activities –SOLAS1974, regulations V/26 and V/28.
- r) Maneuvering booklet – SOLAS1974, regulation II-1/28
- s) Certificates for masters, officers or ratings – STCW1978, article VI, regulation I/2; STCW Code, section A-I/2
- t) Records of hours of rest –STCW Code, section A-VIII/11; MLC
- u) International Oil Pollution Prevention Certificate –MARPOL, Annex I, regulation 7
- v) Oil Record Book-MARPOL Annex I, regulations 17 and 36 New amendments to Oil Record Book, Resolution MEPC.187(59),
- w) Ship board Oil Pollution Emergency Plan -MARPOL Annex I, regulation 37
- x) International Sewage Pollution Prevention Certificate – MARPOL Annex IV, regulation 5
- y) Garbage Management Plan - MARPOL Annex V, regulation 9
- z) Garbage Record Book-MARPOL Annex V, regulation 9
- aa) voyage data recorder system-certificate of compliance-SOLAS1974 regulation V/18.8
- bb) cargo Securing Manual –SOLAS1974, regulations VI/5.6 and VII/5
- cc) document of Compliance –SOLAS 1974, regulation IX/4; ISM Code
- dd) safety Management Certificate – SOLAS 1974, regulation IX/4; ISM Code
- ee) international Ship Security Certificate (ISSC) or Interim International Ship Security Certificate –SOLAS1974, regulation XI-2/9.1.1; ISPS Code part A
- ff) ship Security Plan and associated records –SOLAS1974, regulation XI- 2/9; ISPS Code part A, sections 9 and 10
- gg) continuous Synopsis Record (CSR) –SOLAS 1974, regulation XI-1/5
- hh) international Anti-fouling System Certificate –AFS Convention regulation 2(1) of annex 4
- ii) declaration on Anti-fouling System –AFS Convention regulation 5(1) of annex 4
- jj) international Air Pollution Prevention Certificate -MARPOL Annex VI, regulation 6
- kk) ozone Depleting Substances Record Book –MARPOL Annex VI, regulation 12.6

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- ll) fuel Oil Changeover Procedure and Log-Book(record of fuel changeover –MARPOL Annex VI, regulation 14.6
- mm) manufacturer's Operating Manual for Incinerators – MARPOL Annex VI, regulation 16.7
- nn) bunker Delivery Note and Representative Sample –MARPOL Annex VI, regulations 18.6 and 18.8.1
- oo) technical File - NOx Technical Code, paragraph 2.3.4
- pp) record Book of Engine Parameters - NOx Technical Code, paragraph 2.3.7
- qq) LRIT conformance test report –SOLAS1974, regulation V/19-1

3.8.2 In addition to the certificates listed in above 3.4 , passenger ships shall carry:

- a) Passenger Ship Safety Certificate –SOLAS1974, regulation I/12
- b) special Trade Passenger Ship Safety Certificate, Special Trade Passenger Ship Space Certificate –STP71, rule 5
- c) search and rescue cooperation plan –SOLAS 1974, regulation V/7.3
- d) list of operational limitations – SOLAS 1974, regulation V/30
- e) decision support system for masters – SOLAS 1974, regulation III/29

3.8.3 In addition to the certificates listed in above 3.4 , cargo ships shall carry,

- a) cargo Ship Safety Construction Certificate –SOLAS1974, regulation I/12
- b) cargo Ship Safety Equipment Certificate –SOLAS1974, regulation I/12
- c) cargo Ship Safety Radio Certificate –SOLAS1974, regulation I/12
- d) cargo Ship Safety Certificate -1988 SOLAS Protocol, regulation I/12
- e) document of authorization for the carriage of grain –SOLAS1974, regulation VI/9; International Code for the Safe Carriage of Grain in Bulk, section 3
- f) certificate of insurance or other financial security in respect of civil liability for oil pollution damage –CLC1969, article VII
- g) certificate of insurance or other financial security in respect of civil liability for bunker oil pollution damage-Bunker Convention 2001, article 7
- h) certificate of insurance or other financial security in respect of civil liability for oil pollution damage –CLC1992, article VII
- i) enhanced survey report file –SOLAS1974, regulation XI-1/2;
- j) record of oil discharge monitoring and control system for the last ballast voyage -MARPOL Annex I, regulation 31
- k) oil Discharge Monitoring and Control (ODMC) Operational Manual –MARPOL Annex I, regulation 31

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- l) cargo Information –SOLAS1974, regulations VI/2 and XII/10
- m) ship Structure Access Manual –SOLAS1974, regulation II-1/3-6
- n) bulk Carrier Booklet –SOLAS1974, regulations VI/7 and XII/8; Code of Practice for the Safe Loading and Unloading of Bulk Carriers (BLU Code)
- o) crude Oil Washing Operation and Equipment Manual (COW Manual) -MARPOL Annex I, regulation 35;
- p) condition Assessment Scheme (CAS) Statement of Compliance, CAS Final Report and Review Record –MARPOL Annex I regulations 20 and 21
- q) subdivision and stability information –MARPOL Annex I, regulation 28
- r) VOC Management Plan –MARPOL Annex VI, regulation 15.6

3.8.4 In addition to the certificates listed in above 3.4 and 3.6, where appropriate, any ship carrying noxious liquid chemical substances in bulk shall carry

- a) international Pollution Prevention Certificate for the Carriage of Noxious Liquid Substances in Bulk (NLS Certificate - MARPOL, Annex II, regulation 8
- b) cargo record book - MARPOL Annex II, regulation 15.2
- c) procedures and Arrangements Manual (P & A Manual) -MARPOL Annex II, regulation 14;
- d) shipboard Marine Pollution Emergency Plan for Noxious Liquid Substances - MARPOL Annex II, regulation 17

3.8.5 In addition to the certificates listed in sections 3.4 and 3.6, where applicable, any chemical tanker shall carry,

- a) certificate of Fitness for the Carriage of Dangerous Chemicals in Bulk –BCH Code, section 1.6
- b) international Certificate of Fitness for the Carriage of Dangerous Chemicals in Bulk- IBC Code, section 1.5;

3.8.6 In addition to the certificates listed in sections 3.4 and 3.6 above, where applicable, any gas carrier shall carry:

- a) certificate of Fitness for the Carriage of Liquefied Gases in Bulk –GC Code, section 1.6
- b) international Certificate of Fitness for the Carriage of Liquefied Gases in Bulk –IGC Code, section 1.5;

3.8.7 In addition to the certificates listed in sections 3.4, and 3.5 or 3.6 above, where applicable, any high-speed craft shall carry:

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- a) high-Speed Craft Safety Certificate –SOLAS1974, regulation X/3;
- b) permit to Operate High-Speed Craft – 2000HSCCode, section1.9

3.8.8 In addition to the certificates listed in sections 3.4, and 3.5 or 3.6 above, where applicable, any ship carrying dangerous goods shall carry:

- a) document of compliance with the special requirements for ships carrying dangerous goods –SOLAS1974, regulation II-2/19.4

3.8.9 In addition to the certificates listed in sections 3.4, and 3.5 or 3.6 above, where applicable, any ship carrying dangerous goods in packaged form shall carry:

- a) dangerous goods manifest or stowage plan –SOLAS1974, regulations VII/4.5 and VII/7-2; MARPOL Annex III, regulation4

3.8.10 In addition to the certificates listed in sections 3.4, and 3.5 or 3.6 above, where applicable, any ship carrying INF cargo shall carry:

- a) international Certificate of Fitness for the Carriage of INF Cargo - SOLAS1974, regulation VII/16; INF Code (resolution MSC.88(71)), paragraph 1.3
- b) a Nuclear Cargo Ship Safety Certificate or Nuclear Passenger Ship Safety Certificate, in place of the Cargo Ship Safety Certificate or Passenger Ship Safety Certificate, as appropriate - SOLAS1974, regulation VIII/10

3.8.11 Other certificates and documents which are not mandatory

- a) special Purpose Ship Safety Certificate –ResolutionA.534(13)
- b) offshore Supply Vessel Document of Compliance – Resolution MSC.235(82)
- c) certificate of Fitness for Offshore Support Vessels –ResolutionA.673(16); MARPOL Annex II, regulation13(4)
- d) diving System Safety Certificate - ResolutionA.536(13), section1.6
- e) dynamically Supported Craft Construction and Equipment Certificate - ResolutionA.373(X), section1.6

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- f) mobile Offshore Drilling Unit Safety Certificate –2009MODUCode (resolutionA.1023(26))
- g) wing-in-ground Craft Safety Certificate - MSC/Circ.1054, section9
- h) permit to Operate WIG Craft - MSC/Circ.1054, section10
- i) noise Survey Report –ResolutionA.468(XII), section4.3
- j) maritime Labour Convention certificate
- k) FAL Convention and forms;
 - i. IMO General Declaration (FAL form 1)
 - ii. Cargo Declaration (FAL form 2)
 - iii. Ship's Stores Declaration (FAL form 3)
 - iv. Crew's Effects Declaration (FAL form 4)
 - v. Crew List (FAL form 5)
 - vi. Passenger List (FAL form 6)
 - vii. Dangerous Goods (FAL form 7)

3.9 Regulations concerning Seamen's Articles of Agreement, (Sri Lankan Merchant shipping act 1971 as amended) (6.00 hrs)

- a) states that the Regulations applies to all sea-going vessels registered in Sri Lanka and to the owners, masters and seamen of such vessels
- b) defines, for the purpose of the Regulations:
 - i. vessel
 - ii. seaman
 - iii. master
 - iv. home trade vessel
- c) states that the articles of agreement should be signed both by the ship-owner or his representative and by the seaman, who should be given reasonable facilities to examine them before signing
- d) states that the seaman should sign the agreement under conditions prescribed by national law and adequate supervision by the competent authority

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- e) states that the prescribed conditions should be deemed to have been fulfilled if the competent authority certifies that the provisions of the agreement have been laid before it in writing and have been confirmed both by the ship-owner or his representative and the seaman
- f) states that national law should make adequate provision to ensure that the seaman has understood the agreement

3.10 Recommendation concerning the Contents of Medicine Chests on Board Ship (1.50 hrs)

- a) explains that these recommendations should apply to every vessel engaged in maritime navigation, whether there is a ship's doctor on board or not
- b) states that special provisions should be made for the custody, by the master or other responsible officer, of medicaments the use of which is restricted
- c) states that all medicine chests should contain a medical guide which is sufficiently detailed to enable persons other than a ship's doctor to administer to the needs of sick or injured persons on board with and without supplementary medical advice by radio
- d) states that the rules and regulations should provide for proper maintenance and care of the medicine chests and their contents and their regular inspection at intervals not normally exceeding 12 months by persons authorized by the competent authority
- e) explains that the rules concerning the contents of medicine chests should be revised periodically in accordance with proposals agreed between the International Labour Organization and the World Health Organization.

3.11 Recommendation concerning Medical Advice by Radio to Ships at Sea (1.5 hrs)

- a) explains that there exists a recommended pre-arranged system for medical advice by radio to ships at sea which is available free of charge at any hour of the day or night
- b) explains that there exists an up-to-date and complete list of radio stations from which medical advice can be trained and that this list should be carried on each ship equipped with a radio installation

3.12 International Health Regulations (2005) as amended (1.50 hrs)

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- a) defines for the purposes of these regulations:
- i. arrival of a ship
 - ii. baggage
 - iii. container or freight container
 - iv. crew
 - v. diseases subject to the Regulations
 - vi. disinfecting
 - vii. epidemic
 - viii. free pratique
 - ix. health administration
 - x. health authority
 - xi. infected person
 - xii. in quarantine
 - xiii. international voyage
 - xiv. isolation
 - xv. medical examination
 - xvi. ship
 - xvii. suspect
 - xviii. valid certificate
- b) states that a health authority should, if requested, issue, free of charge to the carrier, a certificate specifying the measures applied to a ship or container, the parts treated, methods used and the reasons why they have been applied
- c) states that, except in an emergency constituting a grave danger to public health, a ship which is not infected or suspected of being infected with a disease subject to the Regulations should not be refused free pratique on account of any other epidemic disease and should not be prevented from discharging or loading cargo or stores, or taking on fuel or water

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- d) states that a health authority may take all practicable measures to control the discharge from any ship of sewage and refuse which might contaminate the waters of a port, river or canal
- e) describes the measures which the health authority of a port may take with respect to departing travelers
- f) states that no health measures should be applied by a State to any ship which passes through waters within its jurisdiction without calling at a port or on the coast
- g) describes the measures which may be applied to a ship which passes through a canal or waterway in a territory of a State on its way to a port in the territory of another State
- h) states that, whenever practicable, States should authorize granting of free pratique by radio
- i) explains that the master should make known to port authorities, as long as possible before arrival, any case of illness on board, in the interests of the patient and the health authorities and to facilitate clearance of the ship
- j) states that, on arrival of a ship, an infected person may be removed and isolated and that such removal should be compulsory if required by the master
- k) states that a ship should not be prevented for health Art. 41 reasons from calling at any port, but if the port is not equipped for applying the health measures which in the opinion of the health authority of the port are required, the ship may be ordered to proceed at its own risk to the nearest suitable port convenient to it
- l) explains the actions open to a ship which is unwilling to submit to the measures required by the health authority of a port
- m) describes the measures concerning cargo and goods
- n) describes the measures concerning baggage Plague
- o) states that, for the purposes of the Regulations, the incubation period of plague is six days
- p) states that vaccination against plague should not be required as a condition of admission of any person to a territory
- q) states that during the stay of a ship in a port infected by plague, special care should be taken to prevent the introduction of rodents on board
- r) states that ships should be permanently kept free of rodents and the plague vector or be periodically deratted
- s) describes the requirements for the issue of a ship sanitary Certificate and its statement of period of validity
- t) states the requirements relation to ships sanitary certificate and the scope of the certificate.
- u) states the conditions in which a ship on arrival is to be regarded as infected, suspected or healthy
- v) describes the measures which may be applied by a health authority on the arrival of an infected or suspected ship

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- w) describes the measures which may be applied by a health authority on the arrival of a healthy ship from an infected area of Cholera
- x) states that, for the purposes of the Regulations, the incubation period of cholera is five days
- y) describes the measures to be taken by the health authority if a case of cholera or yellow fever is discovered upon arrival.
- z) states that, for the purposes of the Regulations, the incubation period of yellow fever is six days
- aa) states that vaccination against yellow fever may be required of any person leaving an infected area on an international voyage
- bb) states that every member of the crew of a ship using a port in an infected area must be in possession of a valid certificate of vaccination against yellow fever
- cc) describes the measures which may be applied by a health authority on the arrival of an infected or suspected ship Documents
- dd) states that bills of health or any other certificates concerning health conditions of a previous port are not required from any ship

- ee) describes the master's obligations concerning a Maritime Declaration of Health
- ff) states that the master and the ship's surgeon, if one is carried, must supply any information required by the health authority as to health conditions on board during the voyage
- gg) states that no health document, other than those provided for in the Regulations, should be required in international traffic

3.13 Safety of Life at Sea (1974,)SOLAS, as amended (1.50 hrs)

3.13.1 2010 Amendments (CH II , V)

3.13.2 2011 Amendments (CH III)

3.13.3 2012 Amendments (CH II ,III ,V , VI ,VII, XI-I)

3.14 International Convention on Maritime Search and Rescue (SAR), 1979 IAMSAR Manual (1.50 hrs)

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- 3.15 International Convention for the Prevention of Pollution from ships, 1973 and the Protocol of 1978 (MARPOL 73/78) (3.00 hrs)**
- 3.15.1 2010 Amendments (An III)
- 3.15.2 2011 amendments (An IV, V, VI)
- 3.15.3 2012 Amendments (An I, II, IV, V, VI)
- 3.16 International Convention on Oil Pollution Preparedness, Response and Co-operation (OPRC), 1990 (1.5 hrs)**
- 3.17 International Convention on the Establishment of an International Fund for Compensation for Oil Pollution Damage (FUND), 1971/1992 (1.50 hrs)**
- 3.18 Convention for the Suppression of Unlawful Acts against the Safety (SUA) 91 of Maritime Navigation, 1988 (1.50 hrs)**
- 3.19 Maritime Labour Convention 2006 (1.50 hrs)**
- 3.20 International convention on Standards of Training certification and watchkeeping for seafarers (1978) STCW as amended (1.50 hrs)**
- 3.21 Amendments to Limitation of Liability for Maritime Claims (0.50 hrs)**
- 3.22 Amendments to Regulation 47 of the 1988 LL Protocol to the International Convention on Load lines (LL) 1996 (0.50 hrs)**
- 3.23 Amendments to the International Convention for Safe Containers, 1972. (0.50hrs)**

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3.24 International Convention on Salvage, 1989/ 93 (1.5 hrs)

3.24.1 Lloyd's Standard Form of Salvage Agreement (LOF 2020)

- a) describes the Contractor's agreed endeavors to save the ship and/or cargo, bunkers and stores and while performing the salvage services to prevent or minimize damage to the environment
- b) describes the exception to the "no cure - no pay" principle
- c) states that the Contractor's remuneration is to be fixed by arbitration in London and any differences arising out of the Agreement are to be dealt with in the same way
- d) states that the provisions of the Agreement apply to salvage services, or any part of such services, referred to in the Agreement which have been already rendered by the Contractor at the date of the agreement
- e) states that English Law is the governing law of the Agreement and of arbitration under it
- f) describes the obligation of the owners, their servants and agents to co-operate with the salvors
- g) describes the Contractor's duty immediately after the termination of the services to notify the Council of Lloyd's and where practicable the owners of the amount for which he requires security
- h) explains that the owners of the vessel, their servants and their agents should use their best Endeavour's to ensure that cargo owners provide their proportion of security before the cargo is released
- i) explains that, pending the completion of the security, the Contractor has a maritime lien on the property salvaged for his remuneration
- j) briefly describes how claims for arbitration are decided

- k) states that the master or other person signing LOF on behalf of the property to be salvaged enters into the agreement as agent for the vessel, her cargo, freight, bunkers, stores and any other property thereon and the respective owners thereof and binds each to the due performance thereof
- l) states that when there is no longer any reasonable prospect of a useful result leading to a salvage reward in accordance with Convention Article 13 the owners of the vessel shall be entitled to terminate the services of the Contractor by giving notice to the Contractor in writing
- m) Describes the provisions for special compensation set out in Convention Article 10.

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3.25 Note of protests (3.00 hrs)

- a) explains that a 'note of protest' is a declaration by the master of circumstances beyond his control which may give, or may have given, rise to loss or damage
- b) states that protests are made before a notary public, magistrate, consular officer or other authority
- c) states that protests should be noted as soon as possible, and in any case, within 24 hours of arrival in port
- d) states that, at the time of noting protest, the master should reserve the right to extend it
- e) states that protests concerning cargo damage should be made before starting to unload
- f) explains that, although there is no requirement to use a special form, it is usual to do so
- g) explains that statements under oath are taken from the master and other members of the crew and that such statements must be supported by appropriate entries in the log-book, which must be produced
- h) states that certified copies of the note of protest should be forwarded to the owners and one copy retained on board
- i) explains why protest should be noted at each discharging port and not just at the first port of call
- j) states that a note of protest is advisable when:
 - i. during the voyage the ship has experienced weather conditions which may result in damage to cargo
 - ii. the ship is in any way damaged, or there is reason to suspect that damage may have occurred
 - iii. normal ventilation of perishable cargo has not been practicable on account of weather
 - iv. cargo is shipped in such a condition that it is likely to deteriorate during the voyage (bills of lading must be appropriately endorsed)
 - v. the chartered or his agent commits any serious breach of the terms of the charter party
 - vi. consignees fail to discharge cargo, take delivery or pay freight in accordance with the terms of a charter party or bill of lading
 - vii. any general average act has occurred
- k) states that, in cases where damage is found to have occurred, it is necessary to extend protest to support claims
- l) states that the master should consult his owner's agent about the local requirement and practice for extending a protest
- m) states that the master must normally appear in person accompanied by a number, depending upon local custom, of crew members as witnesses

3.26 National Maritime Legislation Follow proper procedure in a range of shipboard operations and situations (3.00 hrs)

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- a) master's responsibilities and the procedure with regard to the articles of Agreement art explained.
- b) master's responsibilities and the procedure with regard to the Official Log Book and the entries that have to be made into it are explained.
- c) the application of the Code of Conduct in a range of situations is explained.
- d) the procedure for taking over command of ship is explained.
- e) the procedure and requirements of customs of different countries in clearing a foreign-going ship into and out of the country are explained.
- f) the immigration and quarantine procedure and requirements of different countries are explained.
- g) master's obligation with respect to port state control procedure is explained.
- h) master's responsibilities and the procedure in dealing with stowaways and refugees are explained.
- i) master's responsibilities and the procedures in dealing with death or disappearances are explained.
- j) master's responsibilities and the procedure in dealing with discovery of drugs on board are explained.
- k) master's responsibilities and the precautions and actions that should be taken in dealing with piracy are explained.

4.1 The International Safety Management code (ISM CODE) (6.50 hrs)

- a) introduction
- b) internal and External auditing procedure
- c) masters responsibility and authority - Over riding authority
- d) risk Assessment

4.2 International Ship and Port Facility Code (ISPS CODE) (6.00 hrs)

- a) introduction
- b) internal and External auditing procedure
- c) masters responsibility and authority - Over riding authority

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4.3 Lightering at Sea (STS OPERATION)

(1.50 hrs)

- a) describes the preparations for lightering on both vessels
- b) explains how the loaded tanker should be handled
- c) explains how to come alongside the loaded tanker and how to moor the vessels together
- d) describes the method of separating on completion of off-loading

4.4 Dry-docking (9.00 hrs)

- a) lists the information required by the dry-dock authorities as:
 - i. length, beam and rise of floor, if any
 - ii. draughts and trim
 - iii. position of bilge keels and appendages such as bulbous bow
 - iv. whether single or twin screw
 - v. the weight and disposition of any cargo on board
 - vi. position of any hull damage for inspection or repair
- b) states that a plan showing the position of bulkheads, main structural members and drain plugs is required for the preparation of beds and shores when dry-docking in the loaded condition
- c) explains why a slight trim by the stern is the ideal condition for dry-docking
- d) explains the need for adequate statical stability and states when the most critical condition occurs
- e) describes the use of bilge blocks, breast shores and bilge shores and their placement during pumping out
- f) states that all tanks should be sounded and the readings recorded when the ship takes the keel blocks
- g) states that, as far as possible, tanks should be full or empty
- h) explains that tanks and movable weights should be restored to their original condition before flooding the dock to ensure the same trim and zero list on re-floating
- i) explains why a ship may be left partially waterborne if damage is accessible

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- j) explains how an adequate supply of water for fire fighting and a telephone for calling emergency services should be arranged
- k) lists the precautions to be taken and the preparations to be made before flooding the dock
- l) explains the important of isolating the fixed CO₂ system in the engine room when in the dry dock
- m) static/Dynamic testing of life boat davits
- n) updated dry docking requirement including EDD
- o) procedure of in-water survey in lieu of dry docking
- p) master's responsibilities and the procedures to be followed in dry docking the ship are explained.

Emergencies

4.5 Contingency Plans for Response to Emergencies (3.00 hrs)

- a) draws up a muster list and emergency instructions for a given crew and type of ship
- b) assigns duties for the operation of remote controls such as:
 - i. main engine stop
 - ii. ventilation stop
 - iii. lubricating and fuel oil transfer pump stops
 - iv. dump valves
 - v. CO₂ discharge
 - vi. watertight doors and for the operation of essential services such as:
 - vii. emergency generator and switchboard
 - viii. emergency fire and bilge pump
- c) describes the division of the crew into a command team, an emergency team, a back-up emergency team and an engine-room emergency team
- d) explains the composition of the emergency teams in objective 1.3

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- e) states that crew members not assigned to emergency teams would prepare survival craft, render first aid, assemble passengers and generally assist the emergency parties as directed
- f) designates muster positions for the command team, both at sea and in port
- g) designates muster positions for the emergency teams
- h) states that the engine-room emergency team would take control of engine-room emergencies and keep the command team informed
- i) states that good communications between the command team and the emergency teams are essential
- j) draws up plans to deal with:
 - i. fire in specific areas, such as galley, accommodation, engine room or cargo space, including
 - ii. co-ordination with shore facilities in port
 - iii. taking accounts of the ship's fire control plan
 - iv. rescue of victims of a gassing accident in an enclosed space
 - v. heavy weather damage, with particular reference to hatches, ventilators and the security of deck cargo
 - vi. rescue of survivors from another ship or from the sea
 - vii. leakage's and spills of dangerous cargo
 - viii. stranding
- k) abandoning ship
- l) explains how drills and practices should be organized
- m) describes the role of a shipboard safety committee in contingency planning

4.6 Precautions to be taken when beaching a vessel (1.50 hrs)

- a) describes the circumstances in which a vessel may be beached
- b) states that a gently shelving beach of mud, sand or gravel should be chosen if possible
- c) states that a beaching should be at slow speed

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- d) states that, when trimmed heavily by the head ,beaching stern first may be advantageous
- e) compares the relative advantages of beaching broadside-on to the beach
- f) states that wind or tide along the shore will quickly swing the ship broadside -on to the beach
- g) describes measures which can be taken to assist with subsequent refloating
- h) states that ballast should be bled or transferred to counteract a tendency to bump the bottom
- i) states that all tanks and compartment should be sounded and an assessment made of damage to the ship
- j) states that sounding should be taken to establish the depth of water round the ship and the nature of the bottom

4.7 Actions to be taken on stranding (1.50 hrs)

- a) states that , on standing , the engines should be stopped ,water tight doors closed , the general alarm sounded and , if on a falling tide, the engines should be put full astern to see if the ship will immediately refloat
- b) states that the engineers should be warned to change to high-level water intakes
- c) states that a distress or urgency signal should be transmitted and survival craft prepared if necessary
- d) states that all tanks and compartments should be sounded and the ship should be inspected for damage
- e) states that any discharged or probable discharge of harmful substances should be reported to the nearest coast radio station
- f) states that sounding should be taken to establish the depth of water round the ship and the nature of the bottom
- g) describe measure which can be taken to prevent further damage to the ship and to assist with subsequent refloating
- h) explains how ballasts or other weights may be moved, taken on or discharged to assist refloating
- i) describe the use of ground tackle for hauling off
- j) describes ways in which tugs may be used to assist in refloating
- k) describes the use of the main engine in attempting to refloat and the danger of building up silt from its use

4.8 Actions to be taken following a collision (1.50 hrs)

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- a) lists the duties of the master following a collision
- b) states that after impact the engines should be stopped, all watertight doors closed, the general alarm sounded and the crew informed of the situation
- c) states that in calm weather the colliding ship should generally remain embedded to allow the other ship time to assess the damage or prepare to abandon ship
- d) states that survival craft should be made ready for abandoning ship or assisting the crew of the other ship
- e) states that damage to own ship should be determined
- f) states that a distress or urgency signal should be made, as appropriate
- g) states that requests for information may be received from coastal States
- h) states that, if not in danger, own ship should stand by to render assistance to the other for as long as necessary
- i) describes measures to attempt to limit damage and save own ship
- j) states that any discharge or probable discharge of harmful substances should be reported to the nearest coast radio station
- k) states that the owners should be informed and all details of the collision and subsequent actions entered in the log-book

4.9 Precautions for the protection and safety of passengers in emergency situations (1.50 hrs)

- a) states that some crew members will be assigned specific duties for mustering and control of passengers
- b) lists those duties as:
 - i. warning the passengers
 - ii. ensuring that all passenger spaces are evacuated
 - iii. guiding passengers to muster stations
 - iv. maintaining discipline in passageways, stairs and doorways
 - v. checking that passengers are suitably clothed and that lifejackets are correctly donned
 - vi. taking a roll-call of passengers
 - vii. instructing passengers on procedure for boarding survival craft or jumping into the sea
 - viii. directing passengers to embarkation stations
 - ix. instructing passengers during drills

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- x. ensuring that a supply of blankets is taken to the survival craft

4.10 Means of limiting damage and salving the ship following a fire or explosion (1.50 hrs)

- a) describes methods of fighting fires (see IMO Model Course 2.03, Advanced Training in Fire Fighting)
- b) states that cooling of compartment boundaries where fire has occurred should be continued until ambient temperature is approached
- c) explains the dangers of accumulated water from fire fighting and describes how to deal with it
- d) states that watch for re-ignition should be maintained until the area is cold
- e) describes the precautions to take before entry to a compartment where a fire has been extinguished
- f) describes the inspection for damage
- g) describes measures which may be taken to plug holes, shore up damaged or stressed structure, blank broken piping, make safe damaged electrical cables and limit ingress of water through a damaged deck or superstructure
- h) outlines the measures to be taken when the inert-gas main and gas lines to a mast riser are fractured
- i) states that continuous watch should be kept on the damaged area and temporary repairs
- j) states that course and speed should be adjusted to minimize stresses and the shipping of water

4.11 Procedure for abandoning ship (1.50 hrs)

- a) states that a ship should only be abandoned when imminent danger of sinking, breaking up, fire or explosion exists or other circumstances make remaining on board impossible
- b) states that a distress call should be transmitted by all available means until acknowledged
- c) lists the information to include in the distress message
- d) describes other distress signals which may be used to attract attention
- e) describes the launching of boats and liferafts when the ship is listing heavily
- f) describes the launching of boats and liferafts in heavy weather conditions
- g) describes the use of oil to calm the sea surface and explains why fuel oil is not suitable

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- h) explains the procedure of free fall life boat lowering procedure
 - i. dynamic
 - ii. static

4.12 Rescue of persons from a vessel in distress or from a wreck (1.50 hrs)

- a) states that it is preferable to wait for daylight when no immediate danger exists
- b) states that communications should be established between the ships and the method of rescue agreed upon when time permits
- c) states that rescue boats or motor-lifeboats would be used if conditions permitted
- d) states that unnecessary equipment should be removed from the boats and replaced by lifejackets, lifebuoys, blankets and a portable VHF radio
- e) states that the rescue vessel should reconnoiter the area to see if there is any wreckage which could be a danger to boats
- f) describes how both ships can spread oil in rough weather
- g) describes the preparations for taking survivors on board

- h) describes how to provide a lee and launch boats
- i) describes how boats should approach the wreck and pick up survivors
- j) describes the recovery of boats and survivors
- k) describes methods of rescue which may be used when sea conditions are too dangerous to use boats

4.13 Measures for assisting a vessel in distress

(1.50 hrs)

- a) explains carriage requirement for IAMSAR Manual (International Aeronautical and Maritime Search and Rescue)
- b) explains the available search and rescue system
- c) describes the system organization and SAR co-ordination methods
- d) explains the available decision and management support

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- e) describes the distress communications procedure
- f) explains the search planning and evaluation concepts adapted in IMASAR
- g) explains the procedure for estimating the distress incident location
- h) explains the procedure for determination of survivor motion after the distress incident
- i) explains the search planning and evaluation factors
- j) describes the factors effecting when selecting search patterns
- k) describes the types of visual search patterns
- l) describes the types of night search patterns
- m) describes the search object motion
- n) explains the procedure for planning on-scene co-ordination
- o) explains the search action plans and conduct of the search

4.14 Man-overboard procedures (1.50 hrs)

- a) describes methods of recovering a person from the sea when heavy weather prevents the use of the normal manoeuvres and boats
- b) describes and explains the actions to take when a person is reported missing at sea

4.15 Actions which can be taken when emergencies arise in port (1.50 hrs)

- a) describes actions to take in the event of fire on own ship, with particular reference to co-operation with shore facilities
- b) describes actions which should be taken when fire occurs on a nearby ship or an adjacent port facility
- c) describes the circumstances in which a ship should put to sea for reasons of safety
- d) describes the actions which can be taken to avoid a ship dragging anchor towards own ship in an anchorage
- e) describes the actions and precautions to take when a submarine cable is lifted by the anchor

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- f) describes how to buoy and slip an anchor
- g) describes how an anchor may be recovered when no power is available at the windlass

4.16 Arrangements for towing and being towed (6.00 hrs)

- a) states that permission from the owners or charterers is usually required before towing, except for the purpose of saving life
- b) states that a coastal State may intervene when a disabled ship presents a potential risk to the environment
- c) states that early communication should be established between the vessels to agree on the method of connecting the tow
- d) states that both vessels should have everything prepared and have agreed on communications before the arrival of the towing ship
- e) describes how to approach a disabled vessel and pass the first connection by line-throwing apparatus or other methods
- f) states that the tow normally passes a messenger followed by a wire messenger to the towing vessel to haul across the towing wire
- g) describes how to pay out the towing wire under control
- h) describes methods of securing the towing wire at the towing ship
- i) explains why the wire is usually shackled to the anchor cable of the tow
- j) describes the preparations made by the disabled ship
- k) states that the towing wire should be protected from chafing at fairleads
- l) states that wires and cables should be inspected frequently and the nip freshened if any sign of wear or chafe is found
- m) describes how to take the weight of the tow
- n) explains how the towing speed should be decided
- o) describes how to disconnect the tow on arrival at the destination

4.17 PSC Inspection (1.50 hrs)

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- a) what is PSC
- b) outline of the structure of the PSC MOU's
- c) selection of ships for inspection
- d) who boards a ship to carry out Port State Control?
- e) types of inspection

4.18 Classification Societies (3.00 hrs)

- a) explains the purpose of classification and consequences of losing classification.
- b) states the validity period of certificate of class and describe the surveys required to maintain the same.
- c) describes the class renewal surveys.
- d) explains the services of IACS.

4.19 Miscellaneous (1.50 hrs)

- a) new pilot ladder requirements MSN 04-2011
- b) ballasting of fuel tanks

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3. PRINCIPLES OF MANAGEMENT – (9.0 HRS)

5.1 Demonstrate the knowledge of the principles and practices of management and use management and use management skills.

- a) Basic principles of management are defined and explained.
- b) Goals of management are discussed.
- c) Process of planning is illustrated and explained.
- d) Simple operational action plans are devised.
- e) Monitoring, evaluation and control techniques are explained.
- f) The techniques of problem identification are recognized and explained.

5.2 Demonstrate effective leadership

- a) Leadership is defined
- b) Role and attributes of a leadership are listed and outlined.
- c) Power bases of leadership are listed and outlined.
- d) Fundamentals of three common approaches to leadership are explained and demonstrated.

5.3 Motivate self and others on the ship

- a) Factors affecting motivation are identified.
- b) Process of motivation is explained.
- c) The theory of motivation is explained.
- d) Methods of improving motivation are listed.

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5.4 Form and develop dynamic groups and teams

- a) Nature of groups is defined and the types of group described.
- b) Importance of teamwork is discussed.
- c) Group formation process is listed and outlined.
- d) Task allocation to teams and team members, is demonstrated.
- e) Measures to increase the effectiveness and usefulness of teams are identified.

5.5 Manage shipboard conflicts

- a) Conflict is defined.
- b) Sources of conflict are listed and explained.
- c) Various methods, processes and aids to assist in resolving conflict are explained.
- d) "Rules" of conflict resolution are listed.

5.6 Communicate effectively

- a) Process of communication is outlined.
- b) Barriers to effective communication are outlined.
- c) Measures to overcome the barriers are explained.

5.7 Fatigue Mitigation and Management

6.0 New amendments

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