Transport Canada Transports Canada

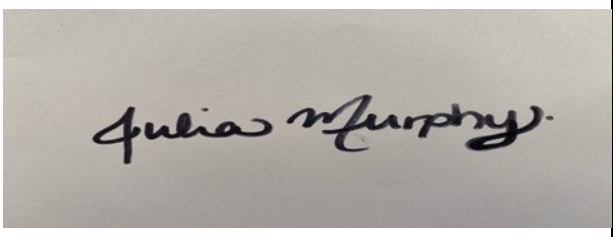
TP 4957E
(07/2021)

MARINE EMERGENCY DUTIES TRAINING COURSES

2ND EDITION

JULY 2021

Canada

Responsible Authority	**Approval**
The Director, Seafarer Certification, Marine Safety and Security is responsible for this document, including any change, correction, or update.	 Julia Murphy Director, Seafarer Certification Marine Safety & Security Transport Canada **Date signed: January 9, 2023**

Original Date Issued: 1998 **Date Revised: July 2021**

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TP 4957E
(07/2021)

DOCUMENT INFORMATION				
Title	**Marine Emergency Duties Training Courses**			
TP No.	**4957E**	**Edition**	**2nd**	**RDIMS #10561142**
Catalogue No.		**ISBN**		
Originator	Seafarer Certification (AMSP)	**Telephone**	1-855-859-3123 (Toll Free) or 613-991-3135	
	Tower C, Place de Ville	**Fax**	(613) 990-1538	
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	Ottawa, Ontario K1A 0N8	**URL**	https://tc.canada.ca/en/marine-transportation	

REVISIONS

Last Review **July 2021**

Next Review **July 2022**

Revision No.	Date of Issue	Affected Pages	Author(s)	Brief Description of Change
01	June 2007	All	AMSP	Complete revision of the publication
02	December 2013	All	AMSP	Complete revision of the publication and implementation of refresher courses, as per STCW Convention, including 2010 Manila Amendments. Introduction of the new optional FFB training course.
03	December 2014	All	AMSP	Revision of the publication and updating of knowledge
04	June 2015	All	AMSP	Revision of the publication and updating of knowledge
05	May 2016	All	AMSP	Revision of the publication and updating of knowledge
06	December 2016	All	AMSP	Revision of the publication and updating of knowledge
07	December 2017	All	AMSP	Revision of the publication and updating of knowledge
08	July 2021	All	AMSP	Revision of the publication and updating of knowledge

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1 GENERAL

1.1 BACKGROUND

1) The International Convention on Standards of Training, Certification and Watchkeeping for seafarers, as amended (STCW Convention, including 2010 Manila Amendments), provides standards related to emergency, occupational safety, security, medical care and survival functions in Chapter VI of the mandatory Code "A";

2) After reviewing the STCW 2010 Convention, the Administration is to:

- revise the content of its MED courses to align with the requirements of STCW Convention, Regulation VI, including 2010 Manila amendments, and the STCW Code, Chapter VI; and
- introduce the new MED refresher training courses.

3) With the coming into force of the revised Marine Personnel Regulations, basic safety (MED A1); small passenger vessel safety (MED A2); and small non-pleasure vessel basic safety (MED A3); become a requirement for the domestic Canadian fleet **only**. Transport Canada is amending the Canadian standards to better reflect the needs of today's industry.

Note: The name and content of those courses have been changed (Refer to Chapters 5 to 10 of this standard).

1.2 PURPOSE

Compliance with the above standards to meet mandatory minimum requirements for:

- safety familiarization training for all seafarers;
- training in advanced fire fighting for seafarers designated to control fire fighting operations; and
- knowledge of how to launch and take charge of a survival craft in emergency situations.

1.3 GOALS

1) To help seafarers understand the hazards associated with the marine environment and with their vessel;

2) To provide, through approved shore-based courses, training in the skills seafarers need to cope with such hazards, to a level appropriate to their functions on board;

3) To ensure that trainees who meet the minimum standards of competency in personal survival techniques and in survival craft and rescue boats other than fast rescue boats, will be able to survive at sea in the event of ship abandonment and enhance their chances of rescue;

4) To ensure that trainees who meet the minimum standard of competency in fire prevention and fire fighting will have knowledge of fire prevention, and be competent to:

- take appropriate measures for the safety of passengers, personnel and of the ship; and
- use fire fighting appliances correctly.

1.4 IMPLEMENTATION

With the coming into force of the *Marine Personnel Regulations*, there are two "streams" of Marine Emergency Duties training:

A) training for the crews of domestic vessels and applicants for certificates of competency not subject to the Convention, and

B) training that fully complies with the Convention, intended for the crews of large vessels and applicants for certificates of competency subject to the Convention.

1.5 NUMBER OF HOURS IN COURSE OUTLINE

1) The number of hours specified for each MED course in these standards are guidelines only, representing the minimum hours of instruction to meet the requirements of this Transport Publication (TP) 4957 and of the International Maritime Organization (IMO) standards as set out in model courses;

2) Instructors may encourage candidates to do off-hours pre-reading to understand the subject/course better and in less time. **Note:** Such pre-reading does not authorize the recognized institution (RI) to deduct time out of the hours set in the course outline. The duration of a course is the number of hours in class and those necessary for demonstrating competencies, and must be fully respected.

1.6 DEFINITIONS

With regards to this standard in MED courses, the following definitions apply:

1) "**main instructor**" means the person actually teaching the entire training course. The main instructor must meet the instructor's qualifications for the training course sought, and be approved by Transport Canada, Marine Safety and Security, Personnel Standards and Pilotage Branch (AMSP);

2) "**assistant instructor**" means a person assisting the main instructor with the practical demonstration and use of equipment. The assistant instructor does not actually teach the course or part of the course to the participant, except when working to obtain his or her qualifications to become a Transport Canada approved instructor, and while he is under the supervision of an approved instructor. The assistant instructor must hold qualifications related to the marine industry or have related skills and be approved in accordance with the Quality Management Manual – AMSP, referred to in Chapter 3;

3) "**demonstrate**[*1]" means, except otherwise stated, that every candidate must physically use the equipment and be able to show that he or she has obtained the skill in this competency;

4) "**demonstrate**[*2]" means, except otherwise stated, that it is not a skill requirement but a demonstration by the instructor and/or at least one candidate, depending on the number of equipment this standard requires for a specific course;

5) "**demonstrate**[*3]" means that that instructors may present information using videos or audio visuals;

6) "**lecture**" may also consist of an on-site explanation of how to use equipment.

7) An "**open configuration**" lifeboat simulator is not fitted with the lifeboat coxswain control systems within an enclosed structure that looks like the interior of a lifeboat. In an 'open configuration' lifeboat simulator, the student coxswain is not isolated from training space, so is subject to distractions.

8) "**Special personnel**"[1] means all persons who are not passengers or members of the crew or children of under one year of age and who are carried on board in connection with the special purpose of that ship or because of special work being carried out aboard that ship. Special personnel are expected to be able bodied with a fair knowledge of the layout of the ship and to have received some training in safety procedures and the handling of the ship's safety equipment before leaving port and include the following:

.1 scientists, technicians and expeditionaries on ships engaged in research, non-commercial expeditions and survey;

.2 personnel engaging in training and practical marine experience to develop seafaring skills suitable for a professional career at sea. Such training should be in accordance with a training programme approved by the TCMSS;

[1] Special personnel on specialized types of ships as per the provisions of Resolution MSC.266(64), Code of Safety for Special purpose Ships, 2008.

.3 personnel who process the catch of fish, whales or other living resources of the sea on factory ships not engaged in catching;

.4 salvage personnel on salvage ships, cable-laying personnel on cable-laying ships, seismic personnel on seismic survey ships, diving personnel on diving support ships, pipe-laying personnel on pipe layers and crane operating personnel on floating cranes; and

.5 other personnel similar to those referred to in .1 to .4 who, in the opinion of the TCMSS, may be referred to this group.

1.7 CLASS SIZE AND COURSE MANUALS

1) RIs should limit lecture class size to 24 students to allow the instructor to give adequate attention to each trainee. Larger numbers may be admitted if extra staff and tutorial periods are provided to deal one-on-one with trainees. Classrooms should:

   - be large enough to seat all students so they can see and hear the instructor, and
   - be equipped with a projector and means of showing videos;

2) RIs should limit practical sessions and group activities to 12 students;

3) for every course, each student should receive a copy of the course manuals to keep. The RIs should make sure their manuals are up to date and approved by Transport Canada, Marine Safety & Security (TCMSS).

1.8 ATTENDANCE

RIs must publish and enforce a clear policy on candidate attendance at classes:

- RIs must keep attendance records
- Trainees must have a minimum of 90% of attendance at lectures.

  Note: 90% minimum attendance exists to accommodate force majeure circumstances that prevent a particular candidate from full 100% attendance. This is NOT a licence to reduce course length by 10%.
- Trainees must have 100% attendance for all skill demonstrations to obtain the TCMSS training certificate.

1.9 PRACTICAL ASSESSMENT

RIs must:

- develop a skill-based assessment checklist.
- conduct the practical skills assessment within the time frame of the practical course outline.
- keep records of assessment on file. They may be required to be shown during an audit.
- develop scenarios that are as realistic as possible, and keep them on file, along with evaluation records.

1.10 OPTIONAL EQUIPMENT REQUIREMENTS

The following will be acceptable as equivalent of meeting the equipment requirements as per subsections 10.5.1, 11.2.1, 12.2.1, 13.2.1, 18.2.1 or 19.2.1., if all conditions in section 3.4 are met:

1) The following requirements must all be met

a) one (1) lifeboat with equipment that meets the functional requirements as stated in SOLAS and complies with LSA Code requirements for cargo vessels. **Note:** The lifeboat does not need to be approved for use at sea, but must be a training model of those found on SOLAS cargo vessels;

b) one (1) davit launched lifeboat simulator, certified by approved classification society as a Class A or Class B simulator, complete with a physical hook trainer containing two hook/ring assemblies normally found on a twin fall lifeboat meeting the SOLAS requirements; and

c) one (1) prelaunch inspection training aid to enable the inspection of davits, boat systems and engine systems before launch.

1.11 POLICY PERTAINING TO LINE THROWING APPARATUS

A live demonstration may be accommodated by demonstrating the physical operation of a line-throwing device without actually having it fired.
That includes as follows:

1. Preparation of the device;
2. Arming the device;
3. Securing the heaving line to the mooring line which is to be passed to the other ship;
4. Safety of operation, such as not pointing the device against attendants, or elements of private property, or against the wheelhouse of a vessel or portholes, etc.
5. Aiming the device;
6. Removal of safety pins if equipped with.

Note: Firing of the device is not necessary and while videos are acceptable and informative, a practical component as descripted above must be observed.

1.12 POLICY PERTAINING TO SELF CONTAINED BREATHING APPARATUS (SCBA) USE WITH BEARD

Training providers must have a policy within their Quality Management System that addresses the issue of persons with a beard using SCBA. Based on correct demonstration of every competency by such a person, as required under this TP document, he will be able to complete the required training under the above policy.

1.13 RECOGNITION OF MED QUALIFICATIONS FOR MEMBERS OF THE NATIONAL DEFENCE

1) Members of the National Defence who followed the naval environmental training program (NETP) of the Royal Canadian Navy at Damage Control School at CFB Esquimalt, BC or in Halifax,NS will obtain the following credits in STCW Basic safety training:

a) Fire prevention and Fire Fighting, as set out in Table A-VI/1-2 of the STCW Code;
b) Elementary First Aid, as set out in Table A-VI/1-3 of the STCW Code; and
c) Personnel Safety and Social Responsibilities , as set out in Table A-VI/1 of the STCW Code -4.

In order to obtain full credit for the STCW Basic safety training, National Defence applicants must choose one of the following alternatives:

.1 Complete the training on **Personnel Survival Techniques** as set out in table A-VI/1-1 of the STCW Code or
.2 Complete the training on **Proficiency in Survival Craft and Rescue Boat other than Fast Rescue Boat**. By choosing this option, a candidate will receive full accreditation for the STCW Basic safety and Proficiency in Survival Craft and Rescue Boat other than Fast Rescue Boat as set out in table A-VI-2 of the STCW Code.

2) Members of the National Defence who followed the naval environmental training program (NETP) of the Royal Canadian Navy in Esquimalt will also received full credit for **Advanced Fire Fighting**, as set out in Table A-VI-3 of the STCW Code.

3) Proficiency in Fast Rescue Boats, as set out in table A-VI/2-2 of the STCW Code. Credit for this training will be allotted if the candidate fulfill the following conditions:

(a) He successfully completed the training on Proficiency in **Survival Craft and Rescue Boat other than Fast Rescue Boat;**
(b) He has performed the functions of Boatswain onboard of one or many RCN vessels;
(c) He has performed the functions of Diver onboard of one or many RCN vessels;
(d) He has submits an official statement issued by the Department of National Defence indicating that he has followed the four modules of the Fast Rescue Crafts training course

2 EQUIVALENCY BETWEEN OLD AND NEW COURSES

2.1 INTRODUCTION

This chapter contains the equivalency between old MED training and the new MED training under the *Marine Personnel Regulations.*

2.2 TRAINING RECEIVED BEFORE THE DAY THE MARINE PERSONNEL REGULATIONS COMES INTO FORCE

EQUIVALENCY

BEFORE JULY 30, 1997	EQUIVALENCY UNDER THE MARINE PERSONNEL REGULATIONS (2007)
Marine Emergency Duties 1	• MED with respect to Basic Safety (MED A_1) **OR** • MED with respect to Small Passenger Vessel Safety (MED A_2)
Marine Emergency Duties 2 **Note:** MED 1 is a pre-requisite to the MED 2.	• STCW Basic Safety (STCW BS) **AND** • Proficiency in Survival Craft and Rescue Boats other than Fast Rescue Boats (PSC)
Marine Emergency Duties 3 **Note:** MED 1 and MED 2 are pre-requisites to the MED 3.	• STCW Basic Safety (STCW BS) **AND** • Proficiency in Survival Craft and Rescue Boats other than Fast Rescue Boats (PSC) **AND** • Advanced Fire Fighting (AFF) **AND** • MED for Senior Officers (MED D)
Lifeboat Man	• STCW Basic Safety (STCW BS) **AND** • Proficiency in Survival Craft and Rescue Boats other than Fast Rescue Boats (PSC)

FROM JULY 30, 1997 TO THE COMING INTO FORCE OF THE MARINE PERSONNEL REGULATIONS	EQUIVALENCY UNDER THE MARINE PERSONNEL REGULATIONS (2007)
Basic Safety (A_1)	MED with respect to Basic Safety (MED A_1)
Small Vessel Safety (A_2)	MED with respect to Small Passenger Vessel Safety (MED A_2)
Small Non-Pleasure Vessel Basic Safety (A_3)	MED with respect to Small Non-Pleasure Vessel Basic Safety (MED A_3)
Sheltered Non-Pleasure Small Vessel Basic Safety and Operator Proficiency (A_4)	No equivalency under the *Marine Personnel Regulations*
Small Seasonal Passenger Vessel Safety (certificated personnel)	MED with respect to Small Seasonal Passenger Vessel Safety (certificated personnel) (MED A_2L)
Small Seasonal Passenger Vessel Safety (non-certificated personnel)	MED with respect to Small Seasonal Passenger Vessel Safety (non-certificated personnel) (MED A_2LL)
Survival Craft (B_1)	Proficiency in Survival Craft and Rescue Boats other than Fast Rescue Boats (PSC)
Basic Safety (A_1) and Marine Fire fighting (B_2) or Small Vessel Safety (A_2) and Marine Fire fighting (B_2)	STCW Basic Safety (STCW BS)
Basic Safety (A_1) or Small Vessel Safety (A_2), Marine Fire Fighting (B_2) and MED for Officers (C)	Advanced Fire Fighting (AFF)
MED for Senior Officers (D)	MED for Senior Officers (MED D)

2.3 TRAINING RECEIVED BETWEEN THE DAYS THE MARINE PERSONNEL REGULATIONS (2007) AND THE REVISED MARINE PERSONNEL REGULATIONS (2017) CAME INTO FORCE

TRAINING RECEIVED UNDER THE MARINE PERSONNEL REGULATIONS (2007)	EQUIVALENCY UNDER THE REVISED MARINE PERSONNEL REGULATIONS (2017)
MED with respect to Basic Safety (MED A_1)	Domestic Vessel Safety (DVS) (Duration: 26 Hours)
MED with respect to Small Passenger Vessel Safety (MED A_2)	Domestic Vessel Safety (DVS) (Duration: 26 Hours)
MED with respect to Small Non-Pleasure Vessel Basic Safety (MED A_3)	Small Non-Pleasure Domestic Vessel Basic Safety (SDV-BS) (Duration: 8 Hours)
MED with respect to Small Seasonal Passenger Vessel Safety (certificated personnel) (MED A_2L)	Small Seasonal Passenger Vessel Safety (Certificated Personnel) (SSPV-CP) (Duration: 8 Hours)
MED with respect to Small Seasonal Passenger Vessel Safety (non-certificated personnel) (MED A_2LL)	Seasonal Passenger Vessel Safety (Non-Certificated Personnel) (SPV-NCP) (Duration: 6 Hours)
MED Restricted Small Passenger-Carrying Vessel Safety (MED RSPVS)	Domestic Passenger Vessel Safety (DPVS) (Duration: 23 Hours)

2.4 ORDER OF PRIORITY FOR TRAINING CERTIFICATES

Below you will find the training certificates ranked from highest to lowest. The holder of a higher ranking certificate enjoys all of the rights and privileges of the holder of any lower ranking certificates:

1) STCW Basic Safety (STCW BS);

2) Domestic Vessel Safety (DVS);

3) Domestic Passenger Vessel Safety (DPVS);

4) Small Non-Pleasure Domestic Vessel Basic Safety (SDV-BS).

Note: The Small Seasonal Passenger Vessel Safety - Certificated Personnel (SSPV-CP), combined with the Seasonal Passenger Vessel Safety - Non-Certificated Personnel (SPV-NCP), can be accepted in lieu of the Domestic Passenger Vessel Safety (DPVS) towards obtaining a master limited or chief mate limited certificate of competency for a vessel of less than 18 m operating only on a seasonal basis between March 31 and December 1 of each year in sheltered waters.

3 APPROVAL OF TRAINING COURSES

3.1 GENERAL

Canada's accession to the STCW Convention means that all approved marine training programs and courses must be delivered and monitored through a quality management system.

3.2 RECOGNIZED INSTITUTION

1) Only a "recognized institution" (RI) as defined in the *Marine Personnel Regulations* may provide courses. Approval procedures are in:

   The *Quality Management Manual – Marine Personnel Standards and Pilotage*,* the Chapter entitled *Approval of Marine Training Courses and Programs.*

   *published by the Department of Transport, Marine Personnel Standards, Pilotage and Medicine Directorate;

2) RIs must conform with STCW Convention, Regulation I/8; having its own internal quality management system in place, under which the course must be monitored;

3) RIs must have a suitable teaching environment, as listed in the specific Transport Canada standards, and have updated reference material and equipment in variety and volume, which are accessible to all students.

3.3 COURSE APPROVAL

Institutions must submit their course syllabus, course outline, training manual, instructor qualifications, teaching qualifications, power point presentations, three completely different sets of examinations and any other required, for approval, to:

Director, Marine Personnel Standards, Pilotage and Medicine
Transport Canada, Marine Safety & Security
330 Sparks Street, Tower "C", 8th Floor
Ottawa, Ontario K1A 0N8

Approval process of STCW Basic Safety:

1) This course may be approved as a whole; or

2) By parts as follows:

   a) part 1 – Personal Survival Techniques as set out in table A-VI/1-1 of the STCW Convention, including 2010 Manila Amendments.

   b) part 2 – Fire Prevention and Fire Fighting as set out in table A-VI/1-2 of the STCW Convention, including 2010 Manila Amendments.

   c) part 3 – Personal Safety and Social Responsibilities as set out in table A-VI/1-4 of the STCW Convention, including 2010 Manila Amendments.

3.4 APPROVAL PROCEDURE FOR THE SIMULATION OPTION FOR LIFEBOAT LAUNCHING, RECOVERY, OPERATION AND MANEUVRING

RIs may use a lifeboat simulator to develop and assess the competencies associated with taking charge of a survival craft or rescue boat during and after launch, including manoeuvring in rough seas, subject to the following conditions:

1) Simulation is only considered a substitute for the lifeboat training elements related to launch and recovery launch, recovery, operation and maneuvering of lifeboats and rescue boats. Training elements related to equipment familiarization, survival craft seamanship and survivor management must still be delivered using an actual lifeboat conforming to the LSA Code.

2) RIs must submit a gap analysis explaining how students will achieve the following performance standards:

    a) use a pre-launch inspection training aid to conduct a visual inspection of the launching system, key boat systems and the engine before launching.

    b) prepare and safely launch a lifeboat and clear the ship's side quickly.

    c) prepare and safely launch a lifeboat in rough sea;

    d) Operate and maneuvre lifeboats and rescue boats, including marshalling of life rafts in calm seas and rough sea condition; and

    e) safely recover the lifeboat in calm and rough sea condition.

3) RIs must also:

    a) have the equipment certified by a Det Norske Veritas (DNV) Classification Society as a Class A, Class B or Class S Survival Craft and Rescue Boat Operation Simulator with type designation as a davit launched lifeboat, indicating that the simulator conforms with STCW Regulation I/12 requirements. Class S Simulators will be accepted by TCMSS on a case-by-case basis only;

    b) forward a copy of this statement of compliance to TCMSS;

    c) ensure the simulator:
        - uses physical controls identical of those found on lifeboats, conforming with the LSA Code; and
        - has hook trainers integrated with the simulator to emulate the bow and stern hook positions;

    d) ensure simulation exercises include the use of a pre-launch inspection training aid enabling the students to conduct a visual inspection of the launching system, key boat systems and the engine before launching;

    e) operate any simulator deployed in an 'Open Configuration' in a dedicated learning space free from distractions;

    f) require each student to perform the duties of the coxswain in charge of the boat for at least three (3) launches, which must include operating and maneuvering the boat,

marshalling of liferafts and the recovery of the lifeboat in calm as well as rough seas conditions;

g) Require each student to perform the duties of a crew member for at least three (3) launches; and,

h) Use (1) approved simulator to train no more than six (6) students at any one time.

Important Notes:

RIs using lifeboat simulation in their PSC course and refreshers must:

- develop a training course manual along with scenarios and instructions for the training of their instructors and submit to TCMSS for approval;

- contact TCMSS in advance of the scheduled date of delivery of the first course incorporating lifeboat simulation to arrange an audit of the instructor and the course by an inspector/examiner; and

- have a TCMSS approved instructor as per TP 4958.

4 SAFETY FAMILIARIZATION TRAINING

AS PER THE MARINE PERSONNEL REGULATIONS, SUBSECTION 205 (1)
The master and the authorized representative of a vessel shall ensure that any person assigned a function on that vessel receives the safety familiarization training set out in TP 4957 before they start to perform any duty on board the vessel.

4.1 GENERAL

1) Companies, masters and crew members each have responsibility to give the obligations set out in this section full and complete effect, and any other measure they must take to ensure that each crew member can make a knowledgeable and informed contribution to the safe operation of the vessel;

2) the company must provide written instructions to the master setting forth the policies and the procedures to follow to ensure that all newly employed seafarers are given a reasonable opportunity to become familiar with the shipboard equipment, operating procedures and other arrangements needed for the proper performance of their duties, before being assigned to those duties. Such policies and procedures must include:

   a) giving each newly employed seafarer a reasonable period of time to become acquainted with:

      i. the specific equipment the seafarer will use or operate;

      ii. vessel-specific watchkeeping, safety, environmental protection, security and emergency procedures and arrangements the seafarer needs to know to perform the assigned duties properly; and

   b) designating a knowledgeable crew member to be responsible for ensuring that each newly employed seafarer has an opportunity to receive essential information in a language the seafarer understands.

3) companies should provide vessel-specific instructions aimed at helping newly employed seafarers become familiar with all procedures and equipment relating to their areas of responsibility;

4) companies should also ensure that all seafarers on a vessel fitted with free-fall lifeboats receive familiarization training in boarding and launching procedures for such lifeboats;

5) the familiarization training should at least give seafarers the abilities appropriate to their position, duties and responsibilities;

6) the master should take all steps necessary to adopt any company instructions in training and familiarization. Such steps should be to:

   a) identify all newly employed seafarers on board the vessel before assigning them to any duties;

   b) give all newly arrived seafarers an opportunity to:

      i. visit the spaces in which they will perform their primary duties,

ii. get acquainted with the location, controls and display features of equipment they will be operate or use,

iii. activate the equipment when possible and perform functions using the controls on the equipment, and

iv. observe someone who is already familiar with the equipment, procedures and other arrangements, and ask questions; and

c) provide a suitable period of supervision when there is any doubt that a newly employed seafarer is familiar with the shipboard equipment, operating procedures and other arrangements needed to properly perform his or her duties.

7) newly assigned seafarers should take full advantage of every opportunity to become familiar with the vessel's shipboard equipment, operating procedures and other arrangements needed to properly their duties. Immediately upon arriving on board for the first time, each seafarer is responsible for getting acquainted with the vessel's working environment, particularly with respect to new or unfamiliar equipment, procedures or arrangements.

4.2 OUTLINE – VESSELS 24 METERS OR MORE OVERALL LENGTH (AS PER EQUIPMENT CARRIED ON BOARD)

Group A is for special personnel.
Group B is for all personnel other than special personnel.

SAFETY AND EMERGENCY PROCEDURES	Group A	Group B
1. Recognize the following alarm signals: a) General emergency alarm b) Fire alarm c) Abandon ship	 Yes Yes Yes	 Yes Yes Yes
2. Locate and properly put on lifejacket and immersion suit	Yes	Yes
3. Locate and understand how to use firefighting equipment: a) Locate alarm activation points, fire extinguishers, fire axes, fire hydrants, hoses and nozzles b) Have basic knowledge of how to use portable fire extinguishers c) Know location of fire blankets	Yes	 Yes Yes Yes
4. Locate and understand how to use line throwing apparatus, distress rockets, flares and smoke signals		Yes
5. Locate and understand how to use SART, EPIRB and emergency VHF handheld radios		Yes

6. Locate and understand how to use breathing apparatus and fireman's outfit		Yes
7. Locate medical first aid equipment. Know location of keys for hospital and medical locker		Yes
8. Locate and understand how to use emergency deck stop mechanism for main engines, including other emergency stop valves		As applicable
9. Locate CO_2 room or any other fixed firefighting installation on board, and control valves for smothering apparatus in pump rooms, cargo tanks and holds		As applicable
10. Locate and understand how to use an emergency fire pump		Yes
11. Understand safety symbols and signs	Yes	Yes
12. Know the actions to take: a) If a person falls overboard b) If fire or smoke is detected c) If the general emergency alarm and/or fire alarm goes off	 Yes Yes Yes	 Yes Yes Yes
13. Know how to properly launch, in case of abandonment, the ship's : a) Liferafts, with or without davits b) Rigid hull liferafts (if carried on board) c) Lifeboats d) Free-fall lifeboats (if carried on board) e) Rescue boats and fast rescue boats f) Platforms (if carried on board) g) Any other means of abandonment on board the vessel		 Yes Yes Yes Yes Yes Yes Yes
14. Know the procedure to recover after a drill the ship's: a) Lifeboats b) Free-fall lifeboats (if carried on board) c) Rescue boats d) Fast rescue boats		 Yes Yes Yes Yes
15. Identify emergency muster stations, emergency headquarters, lifeboat and liferaft embarkation stations and emergency escape routes	Yes	Yes

16. Know the immediate actions to take in a medical emergency before seeking further medical assistance on board. If ED on board (defibrillator), know how to use it.		Yes
17. Be able to operate (close/open) the fire dampers, weather-tight doors and watertight doors fitted on the vessel, other than those for hull openings		Yes
18. Read and demonstrate an understanding of the company's fire and safety regulations and be able to communicate with other persons on board on basic safety matters	Yes	Yes
19. Understand and demonstrate duties as per muster list	Yes	Yes
20. Understand and demonstrate proper communications during emergencies	Yes	Yes
WATCHKEEPING PROCEDURES AND ARRANGEMENTS, DECK CREW	**Group A**	**Group B**
1. Visit bridge, poop deck, forecastle, main deck and other work areas	As applicable	Yes
2. Become acquainted with steering controls, telephones, telegraphs and other bridge equipment and displays	As applicable	Yes
3. Become acquainted with the emergency steering controls		Yes
WATCHKEEPING PROCEDURES AND ARRANGEMENTS, ENGINE CREW	**Group A**	**Group B**
1. Visit engine room and other work areas	As applicable	Yes
2. Become acquainted with main and auxiliary engines and other engine room equipment and displays		Yes
3. Activate, under supervision, equipment to be used in routine duties		Yes
4. Become acquainted with the emergency generator		Yes
ENVIRONMENTAL PROTECTION	**Group A**	**Group B**
1. Understand the on-board garbage handling, segregation and disposal procedures	Yes	Yes
2. Locate the garbage compactor or other such equipment		Yes

as appropriate and understand its use		
3. Locate pollution equipment (SOPEP kit)		Yes
SECURITY PROCEDURES	**Group A**	**Group B**
1. Identify the restricted areas on board	Yes	Yes
2. Understand the security level on board	Yes	Yes
3. Identify the Ship Security Officer. Locate the contact details of the Company Security Officer	Yes	Yes
4. Know the procedures to follow when a security threat is recognized	Yes	Yes
5. Be able to report a security incident, including a piracy or armed robbery threat or attack	Yes	Yes
6. Be able to take part in security-related emergency and contingency procedures	Yes	Yes

4.3 OUTLINE – VESSELS LESS THAN 24 METERS OVERALL LENGTH (AS PER EQUIPMENT CARRIED ON BOARD)

Group A is for special personnel.
Group B is for all personnel other than special personnel.

SAFETY AND EMERGENCY PROCEDURES	Group A	Group B
1. Recognize the following alarm signals: a) General emergency alarm b) Fire alarm c) Abandon ship	 Yes Yes Yes	 Yes Yes Yes
2. Locate and properly put on lifejacket and immersion suit	Yes	Yes
3. Locate and understand how to use firefighting equipment: a) Locate fire extinguishers, fire axes, fire hydrants, hoses and nozzles b) Have basic knowledge of how to use portable fire extinguishers c) Know location of fire blankets	 Yes	 Yes Yes Yes
4. Locate and understand how to use flares and smoke signals		Yes
5. Locate and understand how to use EPIRB and emergency VHF handheld radios		Yes
6. Locate medical first aid kit and know how to operate the ED (Emergency defibrillator)		Yes
7. Know how to properly launch, in case of abandonment, the ship's: a) Liferafts or platforms, with or without davits b) Rigid hull liferafts c) Lifeboats d) Any other means of abandonment on board the vessel	 	 Yes Yes Yes Yes
8. Locate and understand how to use the re-boarding device		Yes
9. Locate and understand how to use emergency deck stop valves		Yes
10. Locate fixed firefighting installation on board		Yes
11. Locate and understand how to use an emergency fire pump		Yes

12. Understand safety symbols and signs, and emergency duties list (muster list)	Yes	Yes
13. Know the actions to take:		
a) If a person falls overboard	Yes	Yes
b) If fire or smoke is detected	Yes	Yes
c) When the general emergency alarm and/or fire alarm goes off	Yes	Yes
d) In case of collision		Yes
e) In case of grounding		Yes
f) In case of flooding	Yes	Yes
g) In case of fire	Yes	Yes
h) If a person is injured	Yes	Yes
i) In case of release of a polluting substance or liquid	Yes	Yes
j) To protect crew members and passengers in emergency situations		Yes
k) To prevent fires	Yes	Yes
l) During fuelling	Yes	Yes
14. Identify emergency muster stations, liferaft/platforms embarkation stations and emergency escape routes	Yes	Yes
15. Be able to operate (close/open) the fire dampers, weathertight doors and watertight doors fitted on the vessel, other than those for hull openings		Yes

5 DOMESTIC VESSEL SAFETY (DVS)

5.1 GENERAL

This course was developed to comply with the requirements of the *Marine Personnel Regulations* on minimum training in personal survival techniques and fire fighting for Canadian seafarers sailing on board passenger vessels, workboats or fishing vessels engaged on a voyage in domestic waters. It also replaces the old MED A_1 and MED A_2 courses.

5.2 EQUIPMENT REQUIREMENTS

1) one inflatable liferaft (minimum 4 persons) with equipment, including an Emergency Position-Indicating Radio Beacon (EPIRB) or a GPIRB (EPIRB with GPS);

2) one rigid-hull liferaft (Type Ovatek 4 or other approved brand with a minimum of 4 persons), with equipment (can be replaced by an audio-visual presentation);

3) enough approved lifejackets for practical demonstration by each participant;

4) one personal floatation device (PFD);

5) Three inflatable lifejackets with CO_2 cartridge for practical demonstration;

6) a variety of immersion suits in sufficient number and suitable for practical demonstration by each participant. **Note:** RIs must introduce a policy in their quality management system stating that at registration, it must advise candidates with special needs they may need to bring their own gear;

7) two SOLAS approved type anti-exposure work suits for fishermen;

8) one personal locator beacon (PLB);

9) one approved lifebuoy with line and approved light;

10) one approved lifebuoy with a buoyant line;

11) one of each: rescue sling and rescue net

12) one line throwing apparatus that can be demonstrated at every course;

13) one rescue blanket and one thermal protective aid (TPA);

14) various types of portable extinguishers (dry chemical, CO_2, water and foam) in sufficient number for practical demonstration by each participant;

15) one fire hose with sufficient water pressure, a rotary nozzle and foam applicator;

16) enough foam for practical demonstration;

17) steel trays for containing fires or approved smoke simulator;

18) one fire blanket;

19) a variety of hand flares (if local regulations do not permit actual hand flares then dummy flares will be acceptable);

20) Search and Rescue Transponder (SART);

21) hydrostatic release units;

22) VHF portable radios;

23) visual or audio-visual presentation on:

   a) various types of rescue craft (liferafts, rigid-hull liferafts, platforms, marine evacuation systems, rescue boats and means of launching them),

   b) hypothermia and cold shock;

24) Paper or PDF copies made available for the candidates to review, of:

   a) TP 14335 – Winter Navigation on the River and Gulf of St-Lawrence,

   b) Ice Navigation in Canadian Waters, 2012 edition,

   c) TP 14070 – Small Commercial Vessel Safety Guide,

   d) TP 10038 – Small Fishing Vessel Safety Manual,

   e) IMO MSC.1/Circ.1185/Rev 1 on survival in cold water,

   f) relevant cases of the Transportation Safety Board (TSB) from previous accidents involving passenger vessels;

25) access to open water or a pool facility suitable for teaching and demonstrating the use of the equipment. The facility must have a platform so candidates can demonstrate entering water from a height.

5.3 DURATION

A minimum of 26 hours.

5.4 MINIMUM AGE

A person must be at least 15 years of age to take the DVS course.

5.5 INSTRUCTOR QUALIFICATIONS

1) Teachers and Instructors must be qualified in the tasks they teach and be appropriately trained in instructional techniques and training methods as set out in section A-I/6 of Part A of the 2010 STCW Code.

2) In the case of a specialized marine training course, the main course instructor, in addition to holding qualifications for teaching, must have received appropriate training and hold a valid TC instructor approval letter;

Note: If the course is under the supervision of more than one instructor, the assistant instructors must hold the qualifications required by subsection 1.6 of this TP.

5.6 GOALS

1) provide seafarers with basic understanding of the hazards related to the marine environment and their own vessel, and of how to prevent shipboard incidents including fire;

2) provide seafarers with the knowledge they need to raise and react to alarms and deal with emergencies;

3) ensure seafarers are able to provide assistance in fire and abandonment situations;

4) provide seafarers with the knowledge and skills to help in their own survival and rescue;

5) teach seafarers the proper procedures for maintaining emergency equipment according to manufacturer guidelines;

6) provide seafarers with the knowledge to maintain the appropriate record-keeping procedures for safety equipment;

7) ensure that crew members of passenger vessels have the knowledge and skills necessary to keep passengers safe and help them survive an emergency;

8) enable crew members of passenger vessels to plan, organize and carry out safety drills so the passengers will be aware of safety equipment and procedures.

5.7 OUTLINE

SUBJECT AREA	HOURS	
	LECTURE	PRACTICAL
1) Introduction and safety 1) Introduction 2) Principles of safety	0.5 hr	
2) Hazards and emergencies 1) Types of emergencies 2) Problems and effects	1 hr	
3) Fire fighting 1) Nature of fire 2) Fire tetrahedron 3) Principles of extinguishment 4) Classes of fire and their symbols 5) Extinguishing agents 6) Safety rules 7) Fixed systems 8) Practical demonstration and fire fighting exercises	2 hrs	3.5 hrs
4) Emergency response 1) Signals and alarms 2) Emergency duties lists (Muster lists) 3) Drills and training 4) Action when called to an emergency 5) Action upon discovering emergency	1 hr	0.5 hr
5) Lifesaving appliances and abandonment 1) Lifejackets including PFD's 2) Immersion suits 3) Anti-exposure work suits 4) Lifebuoys and line throwing devices 5) Liferafts including equipment 6) Rigid hull liferafts and equipment 7) Survival craft and launching devices 8) Hydrostatic release units 9) Platforms and marine evacuation systems	2 hrs	3.5 hrs
6) Survival 1) Factors relating to survival 2) Actions to increase chances of survival and rescue 3) Actions to take after abandoning in a survival craft	2 hrs	1 hr

7) Rescue 1) Rescue equipment 2) Recognition and operation of signalling devices 3) EPIRBs and GPIRBs 4) SARTs 5) PLBs 6) VHF portable radios 7) Pyrotechnics 8) Helicopter and boat rescue	1.5 hrs	0.5 hr
8) Maintenance and inspection of emergency equipment 1) Periodic inspections of emergency equipment 2) Servicing of emergency equipment 3) Firefighting equipment 4) Survival equipment 5) Fixed systems 6) Survival and fire fighting equipment 7) Record-keeping	0.75 hr	1.75 hrs
9) Passenger control 1) Planning 2) Conducting drills 3) Awareness of life-saving appliances and control plans 4) Assisting passengers en route to muster and embarking stations 5) Mustering procedures 6) The human factor 7) Review of TSB recent incidents/accidents 8) Practical exercises, including communications	1.5 hrs	2 hrs
Evaluation	1 hr	Within the course hours
TOTAL	**13.25 hrs**	**12.75 hrs**
	26 hrs	

5.8 SYLLABUS

TOPICS AND LEARNING OBJECTIVES

Legend for practical demonstrations	
*	This may also be achieved by using an approved propane gas-fuelled fire simulator.
*1	This is part of the skill-based assessment, therefore every candidate must be able to demonstrate their competency.
*2	Not a skill requirement but must be demonstrated by the instructor and/or at least one candidate, depending on the amount of equipment available.
*3	Knowledge may be covered using a video or an audio visual presentation

1) Introduction and Safety **0.5 hr Lecture**

Instructors will:

1.1) give an introduction
- 1) learning objectives
- 2) course syllabus

1.2) present principles of safety
- 1) Always follow instructor safety rules
- 2) Follow all safety precautions when handling actual equipment such as pyrotechnics
- 3) Always be careful, even though incidents are simulated.

2) Hazards and emergencies **1 hr Lecture**

Instructors will:

2.1) describe types of emergencies associated with the marine environment
- 1) fire
- 2) collision
- 3) stranding
- 4) explosion
- 5) icing and freezing spray
- 6) equipment failure
- 7) capsizing
- 8) weather conditions
- 9) overloading
- 10) fishing gear failure
- 11) flooding
- 12) person overboard

2.2) describe particular problems associated with various emergencies

3) Fire fighting **2 hrs Lecture & 3.5 hrs Practical**

Instructors will:

3.1) describe nature of fire
- 1) conditions required for fire to occur:
  - a) fuel, such as wood, clothes, furniture, gas or oil
  - b) source of ignition
  - c) oxygen; fire requires 16% oxygen in order to burn
- 2) flash point.
- 3) ignition temperature.
- 4) three ways fire spreads:
  - a) conduction
  - b) convection
  - c) radiation

3.2) explain fire tetrahedron
- 1) three sides of the fire triangle:
  - a) fuel
  - b) heat
  - c) oxygen
- 2) the fourth side of the tetrahedron – the chemical chain reaction

3.3) explain principles of extinguishment
- 1) cooling – water as the easiest method.
- 2) smothering – removing the oxygen.
- 3) starving – removing the fuel, shut-off valves, etc.
- 4) breaking the chain reaction.

3.4) describe classes of fire and their symbols
- 1) Class A – wood, clothing, paper, etc.
- 2) Class B – flammable liquids.
- 3) Class C – Class A or B with added electricity, e.g. electronics .
- 4) Class D – flammable metals (magnesium, lithium, zirconium, sodium, and potassium), e.g. flares.
- 5) Class K – kitchen fires.

3.5) present extinguishing agents
- 1) water – best for Class A fires;
- 2) foam – Class A and Class B;
- 3) carbon dioxide – Class B and Class C;
- 4) dry chemical – Class B and Class C;
- 5) dry powder – Class D;
- 6) wet chemical – Class K.

3.6) present safety rules
- 1) upon discovering fire, raise alarm before attacking fire;
- 2) never pass near the fire to obtain an extinguisher;
- 3) test the fire extinguisher first;
- 4) keep low to the ground;
- 5) aim at the base of the fire and use a sweeping motion;

6) never turn your back on a fire, even if it is out;
7) never use water or foam on an electrical fire; water is a conductor of electrical current and you risk electrocution;
8) remember that water is usually ineffective for flammable liquids and may even make the fire worse or spread it around; the oxygen in the water may feed the fire;
9) beware of flashbacks;
10) use a hose as back up as soon as possible after attacking the fire with a portable fire extinguisher;
11) report the use of a portable extinguisher to your supervisor and do not return it to its station;
12) if the fire occurs while the ship is in port, you must inform the shore authorities immediately.

3.7) describe fixed systems
1) all sprinkler heads are unobstructed;
2) check air pressure;
3) specific checks according to the type of system.

3.8) conduct practical demonstration and fire fighting exercises showing the use of all available fire fighting equipment required for this training course*
1) the correct use of portable fire extinguishers suited, respectively, for the following types of fire*1:
a) materials, e.g. wood
b) oil
2) how to extinguish fire using a hose with water jet and spray nozzles and with a foam applicator*1
3) how to extinguish fire using a fire blanket*2
4) various fire fighting drills, including drills for fire fighting on board a passenger vessel*

4) Emergency response **1 hr Lecture & 0.5 hr Practical**

Instructors will:

4.1) describe and demonstrate signals and alarms
1) emergency alarm signal*3
2) other alarm signals*3
3) who is responsible for the call to abandon vessel

4.2) explain emergency duties lists (Muster lists)
1) when a muster list is required, and what should be used on board if it is not required on your vessel
2) where the list is placed on the vessel
3) what information must be on the muster list or emergency duty list for ships that do not require an official muster list

4.3) explain drills and training
1) the requirement for familiarization
2) the purpose and importance of regular drills and training
3) the need to be ready for an emergency
4) frequency of drills

4.4) present actions to take when called to an emergency
1) suitable clothing
2) bring a lifejacket / immersion suit

4.5) present actions to take upon discovering an emergency situation
1) fire
2) person overboard
3) unconscious casualty
4) injured person
5) flooding
6) damage control

Demonstrate

a) drills showing reaction to these emergencies by practical exercises[*] (can also be part of scenarios)

5) Lifesaving appliances and abandonment 2 hrs Lecture & 3.5 hrs Practical

Instructors will:

5.1) describe lifejackets including PFDs and inflatable lifejackets
1) what is a standard approved lifejacket and what is a PFD
2) number of lifejackets required on a vessel

Demonstrate the proper way to:

a) put on an approved lifejacket and use attachments[*1]
b) care for and stow them[*2]
c) put on a lifejacket in total darkness[*1]
d) enter water from a height and swim while wearing a lifejacket[*1]
e) inflate inflatable lifejackets[*2]
f) use a PFD[*2]
g) enter water from a height and swim while wearing a PFD[*2]

5.2) describe immersion suits
1) qualities of an immersion suit

Demonstrate the proper way to:

a) put on an immersion suit with necessary speed, and use attachments[*1]
b) put on an immersion suit in darkness with necessary speed, and use attachments[*1]
c) enter water from a height and swim while wearing an immersion suit[*1]
d) care for and stow an immersion suit[*2]

5.3) describe anti-exposure work suits
1) use and care

Demonstrate the proper way to

a) put it on with necessary speed, and use attachments[*2]

5.4) describe lifebuoys and line throwing devices
1) number required on a vessel
2) markings, color, vessel name, retro-reflective tape
3) lights and smoke signals
4) line throwing devices

Demonstrate the proper way to:

a) use a buoy (throwing, entering and securing in it while in the water and waiting for rescue)[*2]

b) use a line throwing device[*2] (includes a live demonstration as per policy in section 1.11)

c) care for and stow lifebuoys and line throwing devices[*2]

5.5) describe liferafts including equipment

1) the basic types and features of a liferaft
2) stowage and releasing mechanism

Demonstrate the proper way to

a) launch an inflatable liferaft[*2]

b) board a liferaft from the water[*1]

c) use the survival pack [*2]

d) right an inverted liferaft while wearing a lifejacket[*1]

e) manoeuvre a liferaft and set the anchor to reduce drift[*2]

f) retrieve a person from the water[*1]

g) care for and stow liferafts[*2]

5.6) describe rigid hull liferafts and equipment

1) the basic types and features of this type of liferaft
2) stowage and releasing mechanism
3) how and when to board the rigid hull liferaft from the ship's deck

Demonstrate the proper way to:

a) launch a rigid hull liferaft from the ship's deck (and when)[*2 or *3]

b) use a survival pack [*2 or *3]

c) board a rigid hull liferaft from the water, with lifejacket and then with survival suit[*2 or *3]

d) manoeuvre the rigid hull liferaft and set the anchor to reduce drift[*2 or *3]

e) retrieve a person from the water[*2 or *3]

f) dewater of a rigid hull liferaft[*2 or *3]

g) care for and stow a rigid hull liferaft[*2 or *3]

5.7) describe survival craft and launching devices

Demonstrate

a) various characteristics and operation of different model of davits, including davits for open lifeboats, totally enclosed lifeboats, free-fall lifeboats and rescue boats[*3]

b) how to properly recover these systems[*3]

5.8) describe hydrostatic release units

1) characteristics and operation

Demonstrate[*2] & [*3] the proper way to:

a) install hydrostatic release units, including best position
b) limitation and expiry date
c) care for hydrostatic release units

5.9) describe platforms and marine evacuation systems

Demonstrate

a) a marine evacuation system[*3]
b) characteristics and operation of platforms[*3]

6) Survival **2 hrs Lecture & 1 hr Practical**

Instructors will:

6.1) explain factors relating to survival
1) how each factor affects human response and performance in a survival situation
2) medical aspects of survival including thermal balance, water balance and energy balance
3) cold shock

6.2) present actions to increase chances of survival and rescue
1) prevent, recognize and treat hypothermia (include demonstration[*3])
2) stay near spot where vessel went down; stream the sea anchor
3) review IMO MSC.1/Circ.1185/Rev 1 (or latest version) on survival in cold water
4) know the importance of staying together in the water[*2]

Demonstrate the proper way to:
a) assume the Heat Escape Lessening Posture (HELP)[*1]
b) swim as a group in a chain[*1]
c) form a huddle in the water[*1]
d) use a rescue blanket[*2]

6.3) demonstrate actions to take[*2] or [*3]:
1) after abandoning a vessel in a survival craft
2) after leaving the vessel in winter and/or ice covered water
3) after leaving the vessel in an inflatable liferaft
4) after leaving the vessel in a rigid hull liferaft
5) upon exiting a marine evacuation system
6) after leaving the vessel in a platform with launching device

Note: All demonstrations from section 6.3 can be done during other sections drills.

7) Rescue **1.5 hrs Lecture & 0.5 hr Practical**

Instructors will:

7.1) describe and demonstrate rescue equipment
1) description of:
a) rescue sling
b) rescue basket
c) rescue net
2) demonstrate the proper way to use a:
a) rescue sling[*1]
b) rescue basket[*3]
c) rescue net[*2]

7.2) explain how to recognize and operate signalling devices
1) signalling flashlight

2) daylight signalling mirror (heliograph)

7.3) describe emergency position-indicating radio beacons (EPIRBs)
1) classes of EPIRBs, including new GPIRBs
2) operation and limitation of EPIRBs, GPIRBs
3) mounting on the vessel – free floating, hydrostatic release, etc.
4) registration of the 406 MHz and identification of the signal
5) demonstrate how they work[*2] or [*3]

7.4) describe and demonstrate search and rescue transponders (SARTs)
1) use and function
2) mounting on the vessel
3) limitations
4) demonstrate how it works[*2] or [*3]

7.5) describe and demonstrate personal locator beacons (PLBs)
1) use and function
2) limitations
3) demonstrate how they work[*2] or [*3]
4) care[*2]

7.6) describe and demonstrate VHF portable radios
1) use and limitation
2) requirements as per Canadian regulations
3) demonstrate how to communicate efficiently throughout drills[*1]

7.7) explain and demonstrate pyrotechnics
1) classes of flares and their characteristics
2) circumstances in which to use each
3) markings on flares
4) expiry dates
5) care and stowage
6) types of hand flares and their use
7) types of parachute rockets and their use
8) demonstrate main types[*2] **(**or dummy types as applicable)

7.8) explain helicopter and boat rescue
1) action to take on board a vessel
2) action to take on board a raft
3) lifting appliances used by the helicopter[*3]
4) safety procedures on board the helicopter[*3]
5) towing procedure with the rigid hull liferaft during boat rescue

8) Maintenance and inspection of emergency equipment 0.75 hr Lecture & 1.75 hrs Practical

Instructors will:

8.1) explain the importance of periodic inspections of all emergency equipment found on board

8.2) explain the importance of servicing of all emergency equipment found on board

8.3) demonstrate how to maintain and inspect the fire fighting equipment, as per manufacturer's guidelines[*2] or [*3]

1) fire extinguishers: check gauges on pressurized extinguishers, turn over to loosen dry powders, be sure that partially used or empty extinguishers are set aside for servicing
2) CO_2 extinguishers: check by weight
3) alarm systems
4) fire mains and equipment:
    a) isolation valves
    b) leaks and corrosion

8.4) demonstrate how to maintain and inspect survival equipment as per manufacturer's guidelines [*2] or [*3]
1) lifejackets including PFDs
2) immersion suits
3) anti-exposure work suits
4) lifebuoys and line throwing devices
5) liferafts including equipment
6) rigid hull liferafts and equipment
7) survival craft and launching devices
8) platforms and launching devices
9) marine evacuation systems
10) hydrostatic releases
11) communication equipment (VHF handheld radios)
12) pyrotechnics
13) EPIRBs
14) SARTs

8.5) demonstrate how to maintain and inspect the fixed systems, as per manufacturer's guidelines [*2] or [*3]
1) all sprinkler heads are unobstructed
2) check air pressure
3) specific checks according to the type of system

8.6) describe survival and fire fighting equipment
1) winterization
2) freezing spray

Demonstrate[*2]
    a) TP 14355
    b) Ice Navigation in Canadian Waters, 2012 edition

8.7) explain the importance of keeping records
1) records of repairs and updates
2) records of any incidents that concern safety equipment and its use
3) where would you find these documents on board your vessel

9) Passenger Control — 1.5 hrs Lecture & 2 hrs Practical

Instructors will:

9.1) describe how to plan ahead
1) provide adequate lighting
2) have exits clearly marked
3) provide easy access to lifejackets and gear
4) provide clear signage system:
    a) liferafts and lifeboats

b) lifejackets and buoys
c) muster lists, emergency instructions

5) explain the importance of the principles for developing vessel-specific emergency procedures including:
   a) the need for pre-planning and drills of shipboard emergency procedures
   b) the need for all personnel to be aware of and follow pre-planned emergency procedures as carefully as possible in an emergency situation

9.2) explain the importance of conducting drills
1) assistance to passengers in an emergency
2) familiarity with drills lessens panic in an actual situation
3) notify passengers that a drill reduces fright
4) encourage everyone to take part
5) ability to organize realistic drills to maintain a state of readiness

9.3) describe lifesaving appliances and control plans
1) knowledge of muster lists and emergency instructions
2) knowledge of emergency exits
3) knowledge of the evacuation plan

9.4) explain how to help passengers en route to muster and embarkation stations
1) give clear reassuring orders
2) control passenger traffic in corridors, staircases and passageways
3) keeping escape routes clear of obstructions
4) know how to evacuate disabled persons and persons needing special assistance
5) search accommodation spaces

9.5) explain mustering procedures
1) importance of keeping order
2) how to use procedures for reducing and avoiding panic
3) how to use, where appropriate, passenger lists for evacuation counts
4) how to ensure that passengers are suitably clothed and have put their lifejackets on correctly

9.6) explain the human factor
1) identify those who may cause problems - fear, panic, aggression
2) find something to keep these people busy
3) try to keep families and travelling companions together
4) use anyone who can help - some may have special abilities (medical etc.)
5) understand that stress generated by emergency situations can affect how people act on instructions and follow procedures
6) be aware of the general reaction patterns of passengers and personnel in emergency situations

9.7) review relevant TSB cases, taking into account lessons learned from previous accidents involving passenger vessels

9.8) demonstrate* via practical exercises including scenarios and drills relevant to emergency situations involving passengers, how to :
1) make an initial assessment and provide an effective response to emergency situations according to established emergency procedures
2) lead and direct passenger in emergency situations
3) identify developing symptoms of excessive personal stress and those of other members of the vessel's emergency team

4) provide relevant information to passengers and personnel during an emergency situation, to keep them apprised of the overall situation and to communicate any action required of them
5) make best use of resources
6) communicate with passengers during muster and emergencies

5.9 EVALUATION

The evaluation consists of two parts:

1) 25 multiple-choice questions covering the complete knowledge and competency of the course. Passing mark to obtain the TCMSS training certificate is 70%.

2) practical assessment achieved during the course.
The following legend indicates which competency is part of the skill-based assessment:

   *1 this is part of the skill-based assessment, therefore every candidate must be able to demonstrate their competency.

   *2 not a skill requirement but must be demonstrated by the instructor and/or at least one candidate, depending on the amount of equipment available.

   For drills noted with a *, every candidate must demonstrate during the course that he can act as a lead team member for at least one drill.

6 DOMESTIC PASSENGER VESSEL SAFETY (DPVS)

6.1 GENERAL

This course was developed to comply with the requirements of the *Marine Personnel Regulations* on minimum training in personal survival techniques and fire fighting for Canadian seafarers sailing solely on board passenger vessels engaged on voyage in domestic waters.

6.2 EQUIPMENT REQUIREMENTS

1) one inflatable liferaft (minimum 4 persons) with equipment;
2) enough approved lifejackets for practical demonstration by each participant, including at least two inflatable ones (with CO_2 cartridges in sufficient number for every class demonstration);
3) two approved lifebuoys, one with a line and the other with an approved light;
4) one line throwing apparatus that can be demonstrated at every course;
5) one rescue blanket;
6) various types of portable extinguishers (dry chemical, CO_2, water and foam) in sufficient number for practical demonstration by each participant;
7) one fire hose with sufficient water pressure and a rotary nozzle;
8) steel trays for containing fires or approved propane gas-fuelled fire simulator;
9) one fire blanket;
10) one of each: rescue sling and rescue net;
11) a variety of flares (if local regulations do not permit actual hand flares then dummy flares will be acceptable);
12) visual or audio-visual presentation on the following:
    a) various types of rescue craft (liferafts, platforms, rescue boats, marine evacuation systems),
    b) hypothermia, its effects and ways of overcoming it,
    c) cold shock;
13) one search and rescue transponder (SART);
14) hydrostatic release units;
15) VHF portable radios;
16) relevant cases of the Transportation Safety Board (TSB) from previous accidents involving passenger vessels;
17) access to open water or a pool facility suitable for teaching and demonstrating the use of the equipment.
18) The facility must have a platform so candidates can demonstrate entering water from a height.

6.3 DURATION

A minimum of 23 hours.

6.4 MINIMUM AGE

A person must be at least 15 years of age to take the DPVS course.

6.5 INSTRUCTOR QUALIFICATIONS

1) Teachers and Instructors must be qualified in the tasks they teach and be appropriately trained in instructional techniques and training methods as set out in section A-I/6 of Part A of the 2010 STCW Code.

2) In the case of a specialized marine training course, the main course instructor, in addition to holding qualifications for teaching, must have received appropriate training and hold a valid TC instructor approval letter;

   Note: If the course is under the supervision of more than one instructor, the assistant instructors must hold the qualifications required by subsection 1.6 of this TP.

6.6 GOALS

1) provide seafarers with basic understanding of the hazards related to the marine environment and their specific vessel, and of how to prevent shipboard incidents including fire;
2) provide seafarers with the knowledge they need to raise and react to alarms and deal with emergencies;
3) ensure seafarers are able to provide assistance in fire and abandonment situations;
4) provide seafarers with the knowledge and skills to help their own survival and rescue;
5) provide seafarers with instructions on the proper procedures for maintaining emergency equipment, according to manufacturer's guidelines;
6) provide seafarers with the knowledge to maintain the appropriate record-keeping procedures for safety equipment;
7) ensure that crew members of passenger vessels have the knowledge and skills they need to keep passengers safe and help them survive an emergency;
8) enable crew members of passenger-carrying vessels to plan, organize and carry out safety drills with the passengers so the passengers will be aware of safety equipment and procedures.

6.7 OUTLINE

SUBJECT AREA	HOURS	
	LECTURE	PRACTICAL
1) Introduction and safety 1) Introduction 2) Principles of safety	0.5 hr	
2) Hazards and emergencies 1) Types of emergencies 2) Problems and effects	1 hr	
3) Fire fighting 1) Nature of fire 2) Fire tetrahedron 3) Principles of extinguishment 4) Classes of fire and their symbols	2.5 hrs	3 hrs

5) Extinguishing agents 6) Safety rules 7) Fixed Systems 8) Practical demonstration and fire fighting exercises		
4) Emergency response 1) Signals and alarms 2) Muster lists and evacuation plans 3) Drills, training and familiarization 4) Action when called to an emergency 5) Action upon discovering emergency	1 hr	0.5 hr
5) Lifesaving appliances and abandonment 1) Lifejackets 2) Lifebuoys and line throwing devices 3) Liferafts and equipment 4) Platforms and launching devices 5) Hydrostatic release units	1.5 hrs	2 hrs
6) Survival 1) Factors relating to survival 2) Actions to increase chances of survival and rescue 3) Actions to take after abandoning in a survival craft	1.5 hrs	1 hr
7) Rescue 1) Rescue equipment 2) Recognition and operation of signalling devices including SART 3) VHF portable radios 4) Pyrotechnics	0.75 hr	0.75 hr
8) Maintenance and inspection of emergency equipment 1) Manufacturer's guidelines 2) Periodic inspections 3) Servicing 4) Fire fighting equipment 5) Survival equipment 6) Fixed systems 7) Survival and fire fighting equipment 8) Record-keeping	0.75 hr	1.75 hrs
9) Passenger control 1) Planning 2) Conducting drills 3) Awareness of life-saving appliances and control plans 4) Assisting passengers en route to muster and	1.5 hrs	2 hrs

embarking stations 5) Mustering procedures 6) The human factor 7) Review of Transportation Safety Board recent incidents/accidents 8) Practical exercises **Evaluation**	1 hr	Within the course hours
TOTAL	**12 hrs**	**11 hrs**
	23 hours	

6.8 SYLLABUS

Legend for practical demonstrations	
*	This may also be achieved by using an approved propane gas-fuelled fire simulator.
*1	This is part of the skill-based assessment, therefore every candidate must be able to demonstrate their competency.
*2	Not a skill requirement but must be demonstrated by the instructor and/or at least one candidate, depending on the amount of equipment available.
*3	Knowledge may be covered using a video or an audio visual presentation

1) Introduction and Safety **0.5 hr Lecture**

Instructors will:

1.1) Give an introduction

1.2) Present principles of safety
1) Always follow instructor safety rules
2) Follow all safety precautions when handling actual equipment such as pyrotechnics
3) Always be very careful, even though the incidents are simulated

2) Hazards and emergencies **1 hr Lecture**

Instructors will:

2.1) describe types of emergencies
1) emergencies associated with the marine environment:
a) fire
b) collision
c) stranding
d) explosion
e) icing
f) equipment failure
g) capsizing
h) weather conditions
i) flooding
j) person overboard

2.2) describe particular problems associated with various emergencies

3) Fire fighting **2.5 hrs Lecture & 3 hrs Practical**

Instructors will:

3.1) describe the nature of fire
1) conditions required for fire to occur:
a) fuel, such as wood, clothes, furniture, gas or oil
b) source of ignition
c) oxygen; fire requires 16% oxygen in order to burn
2) flash point
3) ignition temperature
4) three ways fire is spread:
a) conduction
b) convection
c) radiation

3.2) explain the fire tetrahedron
1) the three sides of the fire triangle:
a) fuel
b) heat
c) oxygen
2) the fourth side of the tetrahedron – the chemical chain reaction

3.3) explain the principles of extinguishment
1) cool – water as the easiest method
2) smother – removing the oxygen
3) starve – removing the fuel, shut-off valves, etc.
4) break the chain reaction

3.4) describe classes of fire and their symbols
1) Class A – wood, clothing, paper, etc.
2) Class B – flammable liquids
3) Class C – Class A and B with added electricity, e.g. electronics
4) Class D – flammable metals (magnesium, lithium, zirconium, sodium, and potassium), e.g. flares
5) Class K – kitchen fires

3.5) present extinguishing agents
1) water – best for Class A fires
2) foam – Class A and Class B
3) carbon dioxide – Class B and Class C
4) dry chemical – Class B and Class C
5) dry powder – Class D
6) wet chemical – Class K

3.6) present safety rules
1) after discovering fire, raise alarm before attacking fire
2) never pass near the fire to obtain an extinguisher
3) test the fire extinguisher first
4) keep low to the ground
5) aim at the base of the fire and use a sweeping motion

6) never turn your back on a fire even if it is out
7) never use water or foam on an electrical fire; water is a conductor of electrical current and your risk electrocution
8) water is usually ineffective for flammable liquids and may even make the fire worse or spread it around; the oxygen in the water may feed the fire
9) beware of flashbacks
10) use a hose as back up as soon as possible after attacking the fire with a portable fire extinguisher
11) report the use of a portable extinguisher to your supervisor and do not return it to its station
12) if the fire occurs while the ship is in port, you must inform the shore authorities immediately

3.7) describe fixed systems
1) ensure all sprinkler heads are unobstructed
2) check air pressure
3) conduct specific checks according to the type of system

3.8) conduct practical demonstration and fire fighting exercises showing the use of all available fire fighting equipment required for this training course*
1) the correct use of portable fire extinguishers suited, respectively, for the following types of fire*1:
a) materials, e.g. wood
b) oil
2) how to extinguish fire using a hose with water jet and spray nozzles*1
3) various fire fighting drills, taking into account that passengers are on board*

4) Emergency response **1 hr Lecture & 0.5 hr Practical**

Instructors will:

4.1) describe and demonstrate signals and alarms
1) emergency alarm signal*3
2) other alarm signals*3

4.2) explain muster lists and evacuation plans
1) when a muster list is required
2) where the list is placed on the vessel
3) what information must be on the muster list and show various types
4) when an evacuation plan is required and show various types
5) where the evacuation plan is placed on the vessel
6) what information must be on the evacuation plan
7) company safety message before departure

Demonstrate
a) different evacuation plans and muster lists from various small passenger vessels*2

4.3) explain drills, training and familiarization
1) purpose and importance of familiarization of crewmembers, including legal requirements
2) purpose and importance of regular drills and training
3) need to be ready for an emergency
4) frequency of drills
5) training with passengers

4.4) present actions when called to an emergency

1) passenger control

4.5) present actions upon discovering emergency situation
1) fire
2) person overboard
3) unconscious casualty
4) injured person
5) flooding

Demonstrate
a) drills showing reaction to these emergencies by practical exercises[*]

5) Lifesaving appliances and abandonment 1.5 hrs Lecture & 2 hrs Practical

Instructors will:

5.1) describe lifejackets including inflatable lifejackets and PFD's
1) what is a standard approved lifejacket and an inflatable lifejacket
2) number of approved lifejackets required on a vessel
3) number of approved children lifejackets required on a vessel
4) PFD's versus approved lifejacket

Demonstrate the proper way to:
a) put on an approved lifejacket and use attachments[*1]
b) enter water from a height and swim while wearing a approved lifejacket[*1]
c) put on an approved lifejacket in total darkness[*1]
d) care for and stow lifesaving appliances[*2]
e) inflate and use an inflatable lifejacket [*2]

5.2) describe lifebuoys and line throwing devices
1) number required on a vessel
2) markings, color, vessel name, retro-reflective tape
3) lights, smoke signals and line throwing devices

Demonstrate the proper way to:
a) use a buoy (throwing, entering and securing in it while in the water and waiting for rescue)[*2]
b) use a line throwing device, including a live demonstration[*2] as per policy in section 1.11
c) care for and stow lifebuoys and line throwing devices[*2]

5.3) explain liferafts including equipment
1) the basic types and features of liferafts
2) stowage and releasing mechanism

Demonstrate the proper way to:
a) launch an inflatable liferaft[*2]
b) board a liferaft from the water[*1]
c) use the survival pack [*2]
d) right an inverted liferaft while wearing a lifejacket[*1]
e) manoeuvre a liferaft and set the anchor to reduce drift[*2]
f) care for and stow liferafts[*2]

5.4) describe platforms and launching devices
1) characteristics and operation of various launching devices, including demonstration[*3]

2) marine evacuation systems
3) characteristics and operation of platforms

Demonstrate

a) various types of platform systems[*3]
b) marine evacuation systems[*3]

5.5) describe hydrostatic release units

1) characteristics and operation

Demonstrate[*2] the proper way to:

a) install hydrostatic release units
b) limitation and expiry
c) care for hydrostatic release units

6) Survival — 1.5 hrs Lecture & 1 hr Practical

Instructors will:

6.1) explain factors relating to survival

1) medical aspects of survival including thermal balance, water balance and energy balance

6.2) describe actions to increase chances of survival and rescue

1) prevent, recognize and treat hypothermia (include a visual or audio-visual presentation);
2) cold shock;
3) stay near spot where vessel went down; stream the sea anchor.
4) importance of staying together in the water[*1]

Demonstrate the proper way to:

a) assume the Heat Escape Lessening Posture (HELP) in cold water[*1]
b) swim as a group in a chain[*2]
c) form a huddle in the water[*2]
d) retrieve a person overboard[*1]
e) use a rescue blanket[*2]

6.3) present actions to take after:

1) abandoning a vessel in a survival craft
2) leaving a vessel in an inflatable liferaft
3) leaving a marine evacuation system
4) leaving the vessel in a platform with launching device

Note: All demonstrations from section 6.3 can be done during other sections drills.

7) Rescue — 0.75 hr Lecture & 0.75 hr Practical

Instructors will:

7.1) describe and demonstrate rescue equipment

1) description of:
   a) rescue sling
   b) rescue basket
   c) rescue net

2) demonstrate the proper way to use a:

a) rescue sling[*1]

b) rescue basket[*3]
c) rescue net*[2]

7.2) explain how to recognize and operate signalling devices including SART
1) the use and function of a SART
2) the mounting on the vessel
3) limitations
4) how it works[*2] or [*3]

7.3) explain and demonstrate VHF portable Radios
1) use and limitation
2) requirements as per Canadian regulations
3) communicate efficiently throughout drills[*1]

7.4) explain and demonstrate pyrotechnics
1) classes of flares and their characteristics
2) circumstances in which each are to be used
3) markings on flares
4) expiry dates
5) care and stowage
6) types of hand flares and their use
7) types of parachute rockets and their use
8) demonstrate main types[*2] (or dummy ones as applicable)

8) Maintenance and inspection of emergency equipment 0.75 hr Lecture & 1.75 hrs Practical

Instructors will:

8.1) explain the importance of following manufacturer's guidelines

8.2) explain the importance of periodic inspections of all emergency equipment found on board

8.3) explain the importance of servicing all emergency equipment found on board

8.4) demonstrate how to maintain and inspect the fire fighting equipment, as per the manufacturer's guidelines[*2]
1) fire extinguishers: check gauges on pressurized extinguishers; turn over to loosen dry powders; be sure that partially used or empty extinguishers are set aside for servicing
2) CO_2 extinguishers: check by weight
3) alarm systems
4) fire mains and equipment
a) relief valves
b) leaks and corrosion
c) keep system free of ice

8.5) demonstrate how to maintain and inspect the survival equipment as per the manufacturer's guidelines[*2]
1) lifejackets including PFD's
2) lifebuoys and line throwing devices
3) liferafts including equipment and Hydrostatic release
4) platforms and launching devices
5) survival craft and launching devices

6) communication equipment (VHF hand-held radios)
7) pyrotechnics
8) SARTs

8.6) demonstrate how to maintain and inspect the fixed systems as per the manufacturer's guidelines[*2]
1) all sprinkler heads are unobstructed
2) check air pressure
3) specific checks according to the type of system

8.7) explain survival and fire fighting equipment
1) winterization

8.8) explain the importance of keeping records
1) keep records of repairs and updates
2) keep records of any incidents that concern safety equipment and its use
3) where you would find these documents on board your vessel

9) Passenger control **1.5 hrs Lecture & 2 hrs Practical**

Instructors will:

9.1) describe how to plan ahead
1) provide adequate lighting
2) have exits clearly marked
3) provide easy access to lifejackets and gear
4) provide clear signage system for:
a) liferafts and lifeboats
b) lifejackets and buoys
c) muster lists, emergency instructions
5) explain the importance of the principles for developing vessel-specific emergency procedures including:
a) the need for pre-planning and drills of shipboard emergency procedures
b) the need for all personnel to be aware of and follow pre-planned emergency procedures as carefully as possible in the event of an emergency situation

9.2) explain the importance of conducting drills
1) assist passengers in an emergency
2) familiarity with drills lessens panic in an actual situation
3) notify passengers that a drill reduces fright
4) encourage everyone to take part
5) ability to organize realistic drills to maintain a state of readiness

9.3) describe lifesaving appliances and control plans
1) knowledge of muster lists and emergency instructions
2) knowledge of emergency exits
3) knowledge of the evacuation plan

9.4) explain how to help passengers en route to muster and embarkation stations
1) give clear reassuring orders
2) control of passenger traffic in corridors, staircases and passageways
3) keep escape routes clear of obstructions
4) ways to evacuate disabled persons and persons needing special assistance
5) search of accommodation spaces

9.5) explain mustering procedures
   1) importance of keeping order
   2) ability to use procedures for reducing and avoiding panic
   3) ability to use, where appropriate, passenger lists for evacuation counts
   4) ability to ensure that passengers are suitably clothed and have put their lifejackets on correctly

9.6) explain the human factor
   1) identify those who may cause problems – fear, panic, aggression
   2) find something to keep these people busy
   3) try to keep families and travelling companions together
   4) use anyone who can help – some may have special abilities (medical etc.)
   5) understand that stress generated by emergency situations can affect the performance of individuals and their ability to act on instructions and follow procedures
   6) know the general reaction patterns of passengers and other personnel in emergency situations

9.7) review relevant TSB cases, taking into account lessons learned from previous accidents involving passenger vessels

9.8) demonstrate via practical exercises including scenarios and drills relevant to emergency situations involving passengers; ability to [*]:
   1) make an initial assessment and provide an effective response to emergency situations according to established emergency procedures
   2) lead and direct passengers in emergency situations
   3) identify developing symptoms of excessive personal stress and those of other members of the vessel's emergency team
   4) provide relevant information to passengers and other personnel during an emergency situation, to keep them apprised of the overall situation and to communicate any action required of them
   5) make best use of resources

6.9 EVALUATION

The evaluation consists of two parts:

1) 25 multiple-choice questions covering the complete knowledge and competency of the course. Passing mark to obtain the TCMSS training certificate is 70%.

2) practical assessment achieved during the course.
   The following legend indicates which competency is part of the skill-based assessment:

   [*1] this is part of the skill-based assessment, therefore every candidate must be able to demonstrate their competency.

   [*2] not a skill requirement but must be demonstrated by the instructor and/or at least one candidate, depending on the amount of equipment available.

   For drills noted with a [*], every candidate must demonstrate during the course that he can act as a lead team member on at least one fire fighting drill and one survival drill.

7 SMALL NON-PLEASURE DOMESTIC VESSEL BASIC SAFETY (SDV-BS)

7.1 GENERAL

This course was developed to comply with the requirements of the *Marine Personnel Regulations* on minimum training in personal survival techniques and fire fighting for Canadian seafarers sailing solely on:

24 meters or less vessel engaged on a sheltered waters voyage only

18 meters or less vessel engaged on a voyage in domestic waters

Fishing vessel of 24 meters or less engaged on a voyage in domestic waters

7.2 EQUIPMENT REQUIREMENTS

1) one approved inflatable liferaft with equipment (may be replaced by an audio-visual presentation);
2) one Ovatek or other approved brand rigid hull liferaft (minimum capacity of 4 persons) with equipment (can be replaced by an audio-visual presentation);
3) one approved lifejacket (candidates must demonstrate their ability to put it on correctly);
4) one immersion suit (candidates must demonstrate their ability to put it on correctly);
5) one SOLAS approved anti-exposure work suit;
6) one personal flotation device (PFD);
7) one approved lifebuoy with line and light;
8) one buoyant line throwing device (quoit);
9) one of each: rescue sling and rescue net
10) one dry chemical portable extinguisher;
11) one CO_2 portable extinguisher;
12) steel trays for containing fires (or approved propane gas-fuelled fire simulator);
13) hand flares, parachute flares (a live demonstration by Coast Guard Boating Safety may be substituted) (if local regulations do not permit actual flares then dummy flares are acceptable);
14) hand-held VHF radios;
15) hydrostatic release units;
16) visual or audio-visual presentation on:
    a) cold water shock, swimming failure, hypothermia, post-rescue collapse, their effects, and ways of overcoming them,
    b) liferafts,
    c) rigid hull liferafts (Ovatek),
    d) platforms;
17) relevant Transportation Safety Board (TSB) cases from previous accidents involving passenger vessels.

7.3 DURATION

A minimum of 8 hours

7.4 MINIMUM AGE

A person must be at least 15 years of age to take the SDV-BS course.

7.5 INSTRUCTOR QUALIFICATIONS

1) Teachers and Instructors must be qualified in the tasks they teach and be appropriately trained in instructional techniques and training methods as set out in section A-I/6 of Part A of the 2010 STCW Code.

2) In the case of a specialized marine training course, the main course instructor, in addition to holding qualifications for teaching, must have received appropriate training and hold a valid TC instructor approval letter;

3) **Note:** If the course is under the supervision of more than one instructor, the assistant instructors must hold the qualifications required by subsection 1.6 of this TP.

7.6 GOALS AND CRITERIA

To enable course participants to acquire:

1) a basic understanding of the hazards related to the marine environment and their own vessel, and of how to prevent shipboard incidents including fire;
2) the knowledge they need to raise and react to alarms and deal with emergencies;
3) an ability to provide assistance in fire and abandonment situations;
4) the knowledge and skills to help them in their own survival and rescue.

7.7 OUTLINE

SUBJECT AREA	HOURS	
	LECTURE	PRACTICAL
1) Introduction and safety 1) Introduction 2) Course safety	0.25 hr	
2) Hazards and emergencies 1) Types of emergencies 2) Emergencies on small fishing boats	0.25 hr	
3) Emergency response 1) Signals and alarms 2) Muster lists 3) Drills and training 4) Action upon discovering emergency 5) Action when called to an emergency	0.75 hr	0.5 hr
4) Marine fire fighting 1) Nature of fire 2) Principles of extinguishment	0.75 hr	0.5 hr

3) Classes of fire and their symbols 4) Extinguishing agents 5) Portable extinguishers including demonstration 6) Fire response and fire extinguishing 7) Fire causes and prevention		
5) Lifesaving appliances and abandonment 1) Lifejackets and flotation devices 2) Immersion suits 3) Anti exposure work suits 4) Lifebuoys and quoits 5) Liferafts 6) Rigid hull liferafts 7) Hydrostatic release units	1 hr	1.25 hr
6) Survival 1) Factors relating to survival 2) Actions to increase chances of survival and rescue 3) Actions to take after abandoning in a survival craft 4) Action to take after leaving the vessel in an inflatable liferaft 5) Action to take after leaving the vessel in a rigid hull liferaft	0.5 hr	0.5 hr
7) Signalling 1) Recognition and operation of signalling devices including pyrotechnics 2) Electronic communication	0.5 hr	0.25 hr
8) Rescue 1) Rescue equipment 2) Vessel rescue 3) Helicopter rescue	0.5 hr	
9) Evaluation	0.5 hr	Within the course hours
TOTAL	**5hrs**	**3hrs**
	8 hrs	

7.8 SYLLABUS

Legend for practical demonstrations	
*	This may also be achieved by using an approved propane gas-fuelled fire simulator.
*1	This is part of the skill-based assessment, therefore every candidate must be able to demonstrate their competency.
*2	Not a skill requirement but must be demonstrated by the instructor and/or at least one candidate, depending on the amount of equipment available.

[*3] Knowledge may be covered using a video or an audio visual presentation

1) Introduction and safety **0.25 hr Lecture**

Instructors will:

1.1) give an introduction

1.2) present principles of safety
   1) Always follow instructor safety rules
   2) Follow all safety precautions when handling actual equipment such as pyrotechnics
   3) Always be careful, even though the incidents are simulated

2) Hazards and emergencies **0.25 hr Lecture**

Instructors will:

2.1) describe types of emergencies
   1) emergencies associated with the marine environment:
      a) fire
      b) collision
      c) stranding
      d) explosion
      e) icing
      f) equipment failure
      g) capsizing
      h) weather conditions
      i) overloading
      j) fishing gear failure
      k) flooding
      l) person overboard

2.2) emergencies on small fishing vessels
   1) particular problems associated with emergencies on small fishing vessels

3) Emergency response **0.75 hr Lecture 0.5 hr Practical**

Instructors will:

3.1) describe and demonstrate signals and alarms
   1) emergency alarm signal
   2) other alarm signals
   3) who is responsible for the call to abandon vessel

3.2) explain muster list
   1) where is the list placed on the vessel
   2) what information must be on a muster list

3.3) explain drills, training and familiarization
   1) purpose and importance of familiarization of crewmembers, including legal requirements
   2) purpose and importance of regular drills & training

3) need to be ready for an emergency
4) frequency of drills

3.4) present actions upon discovering emergency
1) fire
2) person overboard
3) unconscious casualty
4) injured person
5) flooding
6) damage control

Demonstrate

a) drills showing reaction to these emergency by practical exercises[*2] & [*3,] including proper communication during emergencies

3.5) present actions when called to an emergency
1) suitable clothing
2) bring a lifejacket/immersion suit

4) Fire fighting **0.75 hr Lecture & 0.5 hr Practical**

Instructors will:

4.1) describe nature of fire
1) conditions required for fire to occur:
a) fuel, such as wood, clothes, furniture, gas or oil
b) source of ignition
c) oxygen; fire requires 16% oxygen in order to burn
2) Fire tetrahedron
a) describe the fire tetrahedron
b) the fourth side of the tetrahedron – the chemical chain reaction

4.2) explain principles of extinguishment
1) cooling – water as the easiest method
2) smothering – removing the oxygen
3) starving – removing the fuel, shut-off valves, etc.
4) breaking the chain reaction

4.3) describe classes of fire and their symbols
1) Class A – wood, clothing, paper, etc.
2) Class B – flammable liquids
3) Class C – Class A and B with added electricity, e.g. electronics
4) Class D – flammable metals (magnesium, lithium, zirconium, sodium, and potassium), e.g. flares
5) Class K – galley class fire

4.4) present extinguishing agents
1) water – best for Class A fires
2) foam – Class A and Class B
3) carbon dioxide – Class B and Class C
4) dry chemical – Class B and Class C
5) dry Powder – Class D
6) wet Chemical – Class K

4.5) explain and demonstrate portable extinguishers
1) types of portable extinguishers
2) use of portable extinguishers

Demonstrate the correct use of portable fire extinguishers to extinguish Class A and/or B fires[*2] &[*3]

4.6) present safety rules
1) after discovering fire, raise alarm before attacking fire
2) never pass near the fire to obtain an extinguisher
3) test the fire extinguisher first
4) keep low to the ground
5) aim at the base of the fire and use a sweeping motion
6) never turn your back to a fire even after it is out
7) never use water or foam on an electrical fire; water is a conductor of electrical current and you risk electrocution
8) water is usually ineffective for flammable liquids and may even make the fire worse or spread it around; the oxygen in the water may feed the fire
9) beware of flashbacks
10) use a hose as back up as soon as possible after you attack the fire with a portable fire extinguisher
11) report the use of a portable extinguisher to your supervisor and do not return it to its station

4.7) explain fire causes and prevention
1) causes:
   a) combustible materials
   b) matches, cigarettes
   c) textiles near hot objects
   d) defective or overloaded electrical systems
   e) incorrect installation of a laundry dryer or failure to keep it clean
   f) overheating of deep fryer
   g) grease build up in ductwork
   h) flammable liquids
2) prevention:
   a) keeping all spaces onboard clean
   b) maintaining electrical equipment
   c) enforcing smoking regulations
   d) keeping all doors closed
   e) maintaining fire appliances
   f) holding regular fire drills

5) Lifesaving appliances and abandonment 1 hr Lecture & 1.25 hrs Practical

Instructors will:

5.1) describe lifejackets and flotation devices
1) what is a standard approved lifejacket
2) difference between a PFD and an approved lifejacket
3) number of lifejackets required on a vessel
4) entering water from a height and swimming while wearing a lifejacket

Demonstrate
   a) proper way to put on a lifejacket and use attachments[*1]

b) care and stowage[*2]
c) proper way to put on a lifejacket in total darkness[*1]
d) proper use of a PFD[*2]

5.2) describe immersion suits
1) qualities of an immersion suit
2) entering water from a height and swimming while wearing an immersion suit

Demonstrate
a) proper way to put it on with necessary speed, and use attachments[*1]
b) proper way to put it on in darkness with necessary speed, and use attachments[*1]
c) care and stowage[*2]

5.3) describe anti-exposure work suits (may be demonstrated using audiovisual presentation)
1) demonstrate the use and care[*2]
2) proper way to put it on with necessary speed, and use attachments[*2]

5.4) describe lifebuoys and quoits
1) number required on a vessel
2) markings, color, vessel name, retro-reflective tape
3) lights and smoke signals

Demonstrate
a) how to correctly use a buoy and a quoit (throwing, entering and securing in it while in the water and waiting for rescue)[*2]
b) care and stowage[*2]

5.5) describe liferafts including equipment (may be demonstrated using audio visual presentation)
1) the basic types and features of liferafts
2) stowage and releasing mechanism

Demonstrate[*2] or [*3]
a) how to correctly launch an inflatable liferaft
b) boarding a liferaft from the water
c) the survival pack and how to use it
d) right an inverted liferaft while wearing a lifejacket
e) manoeuvring a liferaft and setting the anchor to reduce drift
f) care and stowage

5.6) describe rigid hull liferafts and equipment (may be demonstrate using audio visual presentation)
1) the basic types and features of this liferaft
2) stowage and releasing mechanism

Demonstrate[*2] or [*3]
a) how to correctly launch a rigid hull liferaft
b) boarding a rigid hull liferaft from the water
c) the survival pack and how to use it
d) manoeuvring the rigid hull liferaft and setting the anchor to reduce drift
e) care and stowage

5.7) describe hydrostatic release units
1) characteristics and operation

Demonstrate[*2]
a) installation
b) limitation and expiry
c) care

6) Survival **0.5 hr Lecture & 0.5 hr Practical**

Instructors will:

6.1) explain factors relating to survival
1) how each factor affects human response and performance in a survival situation
2) medical aspects of survival including thermal balance, water balance and energy balance

6.2) present actions to increase chances of survival and rescue[*3]
1) need to stay together in the water
2) the Heat Escape Lessening Posture (HELP)
3) need to swim as a group in a chain
4) need to form a huddle in the water
5) hypothermia prevention, recognition and treatment
6) stay near spot where vessel went down; stream the sea anchor

6.3) present action to take after abandoning a vessel in a survival craft[*3]

6.4) present action to take after leaving the vessel in an inflatable liferaft[*3]

6.5) present action to take after leaving the vessel in a rigid hull liferaft[*3]

7) Signalling **0.5 hr Lecture & 0.25 hr Practical**

Instructors will:

7.1) explain how to recognize and operate signalling devices including pyrotechnics
1) types of hand flare and their use
2) daylight signalling mirror (heliograph)
3) signalling flashlight
4) types of parachute rocket and their use
5) circumstances in which each are to be used
6) markings on flares
7) expiry dates
8) care and stowage

Demonstrate

a) the use of a VHF hand held radio[*2]

7.2) explain electronic communication
1) define emergency position-indicating radio beacon (EPIRB)
a) explain how to use an EPIRB
2) define search and rescue transponder (SART)
a) explain how to use a SART

8) Rescue **0.5 hr Lecture**

Instructors will:

8.1) describe and demonstrate rescue equipment
1) rescue sling[*2] or [*3]

2) rescue basket[*3]
3) rescue net[*2] or [*3]

8.2) describe vessel rescue

8.3) describe helicopter rescue
1) action to take on board a vessel
2) action to take on board a raft
3) lifting appliances
4) safety procedures on board the helicopter

7.9 EVALUATION

The evaluation consists of two parts:

1) 25 multiple-choice questions covering the complete knowledge and competency of the course. Passing mark to obtain the TCMSS training certificate is 70%.

2) practical assessment achieved during the course.
The following legend indicates which competency is part of the skill-based assessment:

[*1] this is part of the skill-based assessment, therefore every candidate must be able to demonstrate their competency.

[*2] not a skill requirement but must be demonstrated by the instructor and/or at least one candidate, depending on the amount of equipment available.

For drills noted with a*, every candidate must demonstrate during the course that he can act as a lead team member for at least one drill.

8 SMALL SEASONAL PASSENGER VESSEL SAFETY (CERTIFICATED PERSONNEL) (SSPV-CP)

8.1 GENERAL

This course is vessel-specific. It is intended for holders of a certificate of competency as Master, Limited, vessel of less than 18 meters (formerly vessel of less than 60 gross tonnage) or Chief Mate, Limited, vessel less than 18 meters on passenger carrying . It replaces the old MED A_2L. (See note from section 2.4)

8.2 EQUIPMENT REQUIREMENTS

1) safety training manual for each participant
2) the vessel's equipment

8.3 DURATION

A minimum of 8 hours

8.4 PRE-REQUESITE AND MINIMUM AGE

1) a person must be at least 15 years of age to take the SSPV-CP course.
2) a person must hold a training certificate in small seasonal passenger vessel safety (non-certificated personnel) (SSPV-NCP) to take this course.

8.5 INSTRUCTOR QUALIFICATIONS

1) Teachers and Instructors must be qualified in the tasks they teach and be appropriately trained in instructional techniques and training methods as set out in section A-I/6 of Part A of the 2010 STCW Code.

2) In the case of a specialized marine training course, the main course instructor, in addition to holding qualifications for teaching, must have received appropriate training and hold a valid TC instructor approval letter.

   Note: If the course is under the supervision of more than one instructor, the assistant instructors must hold the qualifications required by subsection 1.6 of this TP.

8.6 GOALS AND CRITERIA

To provide officers with knowledge of:

1) current regulations related to fire and boat drills, life saving apparatus and safety equipment,
2) proper stowage, care, maintenance and servicing requirements for safety equipment and appliances on board the vessel,
3) crew management related to safety, training and organization,
4) shipboard administration and appropriate record-keeping,
5) crowd and passenger control,
6) communications during emergencies.

8.7 OUTLINE

SUBJECT AREA	HOURS	
	LECTURE	**PRACTICAL**
1) Maintenance and inspection of emergency equipment 1) Manufacturer's guidelines 2) Periodic inspections 3) Servicing 4) Fire fighting equipment 5) Fixed systems 6) Communication equipment 7) Survival craft and launching systems 8) Personal lifesaving equipment 9) Record keeping	2 hr	1.5 hr
2) Passenger control 1) Planning 2) Conducting drills 3) Lifesaving appliances and control plans 4) Assisting passengers en route to muster and embarking stations 5) Muster procedures 6) Method of disembarkment of passengers 7) The human factor	2 hr	2 hr
3) Evaluation	0.5 hr	
TOTAL	**4.5** hr	**3.5** hr
	8 hr	

8.8 EVALUATION

The evaluation consists of 25 multiple-choice questions covering the complete knowledge and competency of the course. The passing mark to obtain the TCMSS training certificate is 70%.

9 SEASONAL PASSENGER VESSEL SAFETY (NON-CERTIFICATED PERSONNEL) (SPV-NCP)

9.1 GENERAL

1) there are a large number of non-certificated personnel on vessels who are summer students employed on a short-term basis, many for one season only. This chapter describes vessel-specific, on-board basic safety training to give these employees when they begin their shipboard employment.

2) it is intended for the seasonal crew of passenger vessel only . It is also replacing MED A_2LL.
3) This course may also be substituted for the Small non-pleasure domestic vessel basic safety (SDV-BS) for the purpose of obtaining Master, Limited, Vessel of less than 18 meters, non-passenger carrying vessel.

9.2 EQUIPMENT REQUIREMENTS

1) safety training manual for each participant;
2) safety training log for crew members;
3) one approved lifejacket for each participant;
4) one approved lifebuoy with line;
5) one approved lifebuoy light;
6) one dry chemical and one CO_2 portable extinguisher;
7) one fire hose with water pressure;
8) steel tray for containing fire (or approved propane gas-fuelled fire simulator);
9) supply of gasoline and lubricating oil for the fire tray (n/a if using simulator);
10) hand flares;
11) visual or audio-visual presentations on:
    a) launching and operation of liferafts / platforms,
    b) nature of fire.

9.3 DURATION

A minimum of 6 hours

9.4 MINIMUM AGE

A person must be at least 15 years of age to take the SSPV-NCP course.

9.5 INSTRUCTOR QUALIFICATIONS

1) Teachers and Instructors must be qualified in the tasks they teach and be appropriately trained in instructional techniques and training methods as set out in section A-I/6 of Part A of the 2010 STCW Code.

2) In the case of a specialized marine training course, the main course instructor, in addition to holding qualifications for teaching, must have received appropriate training and hold a valid TC instructor approval letter;

3) **Note:** If the course is under the supervision of more than one instructor, the assistant instructors must hold the qualifications required by subsection 1.6 of this TP.

9.6 GOALS AND CRITERIA

To provide crew members with:

1) a basic understanding of the hazards related to the marine environment and their own vessel;
2) the knowledge they need to raise and react to alarms and deal with the initial stage of an emergency;
3) the ability to provide assistance in fire, abandonment and other emergency situations;
4) the knowledge and skills to help in their own survival and rescue;
5) the ability to knowledgeably follow orders from the vessel's officers in emergency situations.

9.7 OUTLINE

SUBJECT AREA	HOURS	
	LECTURE	PRACTICAL
1) Types of emergencies 1) Fire and explosion 2) Collision 3) Structural failure 4) Grounding 5) Stranding 6) Capsizing 7) Weather conditions	0.25 hr	
2) Emergency response 1) Muster stations 2) Drill – general alarm 3) Fire alarm 4) Duties of individuals and groups 5) Chain of command 6) Location of escape routes 7) Response to the discovery of a fire 8) Response to person overboard 9) Response to flooding 10) Response to unconscious casualty / injured person	0.5 hr	
3) Lifesaving Appliances 1) Lifejackets 2) Lifebuoys 3) Buoyant apparatus 4) Inflatable platforms 5) Inflatable liferafts	1 hr	
4) Abandonment and survival (includes video presentation on liferafts) 1) Liferafts, platforms & buoyant apparatus – drills 2) Survival: hypothermia, prevention of panic, crowd control 3) Use of communication equipment	0.5 hr	
5) Rescue (includes video presentation on flares) 1) Knowledge and use of flares	0.5 hr	
6) First aid 1) Emergency response and reporting procedures (not first aid training as such)	0.25 hr	

7) Fire fighting (includes video presentation) 1) Knowledge of on-board hoses and fire hydrants 2) Knowledge of dry chemical fire extinguishers 3) Hands-on extinguishing of a pan fire using a dry chemical extinguisher 4) Use of and familiarization with fire hose and nozzle	1 hr	1.5 hrs
8) Evaluation	0.5 hr	
TOTAL	**4.5 hrs**	**1.5 hrs**
	6 hrs	

9.8 EVALUATION

The evaluation consists of 25 multiple-choice questions covering the complete knowledge and competency of the course. The passing mark to obtain the TCMSS training certificate is 70%.

10 STCW BASIC SAFETY (STCW BS)

10.1 GENERAL

1) this course meets the requirements of STCW Convention Regulation VI/1 and STCW Code Tables A-VI/1-1, A-VI/1-2 and A-VI/1-4, basic safety training for seafarers.

2) the STCW Basic Safety training course consists of four parts:
    a) part 1: Personal survival techniques, as set out in table A-VI/1-1 of the STCW Code (sections 10.4 to 10.10 of this TP);
    b) part 2: Fire prevention and fire fighting as set out in table A-VI/1-2 of the STCW Code (sections 10.11 to 10.17 of this TP);
    c) part 3: Personal safety and social responsibilities, as set out in table A-VI/1-4 of the STCW Code (sections 10.18 to 10.24 of this TP);
    d) the Elementary first aid, as set out in A-VI/1-3 of the STCW Code, is being covered in TP 13008 – Training Standards for Marine First Aid and Marine Medical Care.

3) if the school is approved to deliver the parts separately, then a separate training certificate will be issued for each part of the course.

10.2 PRE-REQUESITE AND MINIMUM AGE

1) a person must be at least 16 years of age to take the STCW BS course.
2) part 2 (Fire prevention and fire fighting) as set out in A-VI/1-2 of the STCW Code may require a fit test prior to joining the course. For further details contact the recognized institution.

10.3 DURATION

1) part 1: A minimum of 15 hours;
2) part 2: A minimum of 23 hours;
3) part 3: A minimum of 8 hours if followed by Parts 1 and 2 and a minimum of 12 hours if given as a stand-alone course. See section 10.22 – Outline.

PART 1 – PROFICIENCY IN PERSONAL SURVIVAL TECHNIQUES (STCW A-VI/1-1)

10.4 INSTRUCTOR QUALIFICATIONS

1) Teachers and Instructors must be qualified in the tasks they teach and be appropriately trained in instructional techniques and training methods as set out in section A-I/6 of Part A of the 2010 STCW Code;

2) In the case of a specialized marine training course, the main course instructor, in addition to holding qualifications for teaching, must have received appropriate training and hold a valid TC instructor approval letter.

Note: If the course is under the supervision of more than one instructor, the assistant instructors must hold the qualifications required by subsection 1.6 of this TP.

10.5 EQUIPMENT REQUIREMENTS

1) a SOLAS approved and equipped lifeboat that meets all LSA Code requirements for cargo vessels. The lifeboat must be fitted under davits, allowing direct launching into the open water. The lifeboat release and retrieval system must comply with the new IMO resolution MSC 320 (89). **Note:** The lifeboat is not required to be approved for use at sea, but must be a training model similar to those on SOLAS cargo vessels;

Or

equipment as mentioned under subsection 1.10 of section 1, with the conditions listed under subsection 3.4;

2) one SOLAS approved inflatable liferaft (minimum 12 persons) with equipment, which meets SLA Code requirements for cargo vessels, fitted with an approved davit. **Note:** The davit is not required to be approved for use at sea, but must be a training model of those on SOLAS cargo vessels;
3) one Ovatek or other approved brand rigid hull liferaft (minimum capacity of 4 persons) with equipement (can be replaced by an audio-visual presentation);
4) one SOLAS approved lifejacket for each participant including three inflatable lifejackets;
5) a variety of immersion suits suitable for 100% of the participants, including at least two SOLAS approved anti-exposure work suits. **Note:** Schools must introduce a policy in their quality management system stating that at registration they will advise candidates with special needs they may need to bring their own gear;
6) two approved lifebuoys, one with a line and the other with an approved light and buoyant smoke signal;
7) one of each: rescue sling and rescue net;
8) one re-boarding device;
9) a line throwing device that can be demonstrated at each course;
10) a variety of hand flares, parachute rockets and day smoke signals;
11) two portable 2-way radiotelephones approved for use in survival craft or a GMDSS radio, or other radios that meet the functional equivalency;
12) one demonstration Class 1 EPIRB or a GPIRB (EPIRB equipped with GPS);
13) one demonstration search and rescue transponder (SART);
14) paper or PDF copies for the candidates review, of:

    a) TP 14335 – Winter Navigation on the River and Gulf of St. Lawrence,

b) Ice Navigation in Canadian Waters, 2012 edition,
c) relevant cases of the Transportation Safety Board (TSB), from previous accidents involving passenger-carrying vessels,
d) International Life-Saving Appliance Code (LSA Code),
e) IMO Guidelines for Evaluation and Replacement of Lifeboat Release and Retrieval systems, MSC.1/circ.1392;

15) visual or audio-visual presentation on:

a) various types of approved lifeboats (including free-fall lifeboats), rescue boats, fast rescue boats and liferafts (including rigid hull) that can be found on various types of vessels,
b) marine evacuation systems,
c) man overboard,
d) hypothermia, its effects and ways of overcoming it,
e) cold shock,
f) preparing for abandonment;

16) access to open water or to pool facilities suitable for teaching and demonstrate the use of the equipment. The facility must have a platform so candidates can demonstrate entering water from a height.

10.6 DURATION

A minimum of 15 hours

10.7 GOALS

To enable course participants to acquire knowledge, understanding and proficiency in:

1) types of emergency situations that may occur, such as collision, fire, foundering;
2) types of lifesaving appliances normally carried on various vessels;
3) equipment in survival craft;
4) location of personal lifesaving appliances;
5) principles concerning survival, including:

a) value of training and drills,
b) personal protective clothing and equipment,
c) need to be ready for any emergency,
d) actions to take when called to survival craft stations,
e) actions to take when required to abandon ship,
f) actions to take when in the water.

10.8 OUTLINE

SUBJECT AREA	HOURS	
	LECTURE	PRACTICAL
1) Introduction and safety 1) Introduction	0.75 hr	

2) Principles of safety 3) Overview of various documents		
2) Hazards and emergencies 1) Types of emergencies 2) Crew expertise 3) Drills and training	0.75 hr	0.5 hr
3) Emergency Response 1) Signals and alarms 2) Emergency duties lists (Muster lists) 3) Training manual 4) Safety plan and symbols 5) Action when called to an emergency 6) Action upon discovering an emergency situation	0.75 hr	0.5 hr
4) Lifesaving appliances and abandonment 1) Lifejackets 2) Immersion suits 3) Anti-exposure work suits 4) Thermal protective aids 5) Lifebuoys and line throwing devices 6) Personal survival 7) Lifeboats 8) Liferafts including equipment 9) Rigid hull liferafts and equipment 10) Demonstrate action to take after abandoning a vessel in a survival craft	1.5 hrs	4 hrs
5) Damage control and evacuation 1) Damage control 2) Abandoning ship - last resort 3) Demonstrate various types of evacuation systems 4) Master's order to abandon ship	0.5 hr	0.5 hr
6) Survival 1) Factors relating to survival 2) Actions to increase chances of survival and rescue	0.5 hr	0.5 hr
7) Rescue 1) Rescue equipment 2) Recognition and demonstration of signalling devices 3) Emergency position-indicating radio beacons (EPIRB), including GPIRB 4) Search and rescue transponders (SART) 5) VHF portable radios 6) Pyrotechnics 7) Boat rescue	1 hr	0.75 hr

8) Helicopter assistance 1) Communicating with the helicopter 2) Evacuation from ship and survival craft 3) Helicopter pick-up 4) Correct use of helicopter harness	0.5 hr	0.5 hr
9) Maintenance and inspection of emergency equipment 1) Manufacturer's guidelines 2) Fixed systems 3) Record-keeping	0.5 hr	0.5 hr
Evaluation Part 1	0.5 hr	Within the course hours
TOTAL	**7.25 hrs**	**7.75 hrs**
	15 hrs	

10.9 SYLLABUS

Legend for practical demonstrations	
*1	This is part of the skill-based assessment, therefore every candidate must be able to demonstrate their competency.
*2	Not a skill requirement but must be demonstrated by the instructor and/or at least one candidate, depending on the amount of equipment available.
*3	Knowledge may be covered using a video or an audio visual presentation

1) Introduction and safety **0.75 hr Lecture**

Instructors will:

1.1) give an introduction
- 1) learning objectives
- 2) course syllabus
- 3) candidates who must follow this training course (for certification purposes, crewing purposes and to meet the new STCW-F Convention requirements)

1.2) present principles of safety
- 1) Always follow instructor safety rules
- 2) Follow all safety precautions when handling actual equipment such as pyrotechnics
- 3) Always be careful, even though the incidents are simulated.

1.3) give an overview of various documents, codes, regulations and standards available for review (LSA Code, SOLAS, *Marine Personnel Regulations*, TP 14335, etc.)

2) Hazards and emergencies **0.75 hr Lecture & 0.5 hr Practical**

Instructors will:

2.1) describe types of emergencies

1) demonstrate various emergencies related to the marine environment[*3]:
    a) fire and explosions (will be further developed during the basic fire fighting course)
    b) collision
    c) stranding
    d) equipment failure
    e) capsizing
    f) overloading
    g) fishing gear failure
    h) flooding
    i) cargo shift or partial lost of cargo
    j) adverse reaction of dangerous goods or hazardous bulk materials
    k) hull failure
    l) weather conditions including icing and freezing spray
    m) person overboard

2) describe particular problems associated with various emergencies
3) explain means generally provided in case of foundering

2.2) describe crew expertise
1) explain that the effectiveness of the lifesaving equipment depends on the expertise of the crew
2) explain initial on-board familiarization, SOLAS and Canadian regulations, and review of chapter 4 of this TP

2.3) describe drills and training
1) purpose and importance of regular drills and training
2) need to be ready for an emergency
3) frequency of drills

3) Emergency response **0.75 hr Lecture & 0.5 hr Practical**

Instructors will:

3.1) describe and demonstrate signals and alarms
1) demonstrate emergency alarm signal[*3]
2) demonstrate other alarm signals[*3]
3) who is responsible for the call to abandon vessel

3.2) explain emergency duties lists (muster lists)
1) what is a muster list
2) demonstrate various types of muster lists, including various types of ships[*2] & [*3]
3) where should they be posted

3.3) describe training manual
1) specific training to the ship is documented in the ship's SOLAS training manual
2) demonstrate different company training manuals, for various types of ships[*2] & [*3]

3.4) identify and demonstrate safety plan and symbols
1) identify IMO safety symbols used on board ships
2) demonstrate various types of lifesaving and safety plans[*2] & [*3]
3) where should they be posted

3.5) present actions to take when called to an emergency

1) suitable clothing
2) bring a lifejacket / immersion suit

3.6) present actions to take upon discovering emergency situation
1) person overboard
2) unconscious casualty
3) injured person
4) flooding
5) grounding
6) any emergency when on board a passenger vessel

4) Lifesaving appliances and abandonment 1.5 hrs Lecture & 4 hrs Practical

Instructors will:

4.1) describe lifejackets
1) a standard SOLAS approved lifejacket versus others that may be found on the market
2) number of lifejackets required on a vessel (including overview of SOLAS and Canadian regulations)
3) special requirements for passenger vessels
4) what is a personal flotation device (PFD) and its use
5) what is an inflatable lifejacket and its use

Demonstrate
a) proper way to put on a lifejacket and use attachments[*1]
b) proper way to put on a lifejacket and use attachments in total darkness[*1]
c) care and stowage[*2]
d) entering water from a height and swimming while wearing a lifejacket[*1]
e) inflation of inflatable lifejackets[*2]
f) proper use of a PFD[*2]

4.2) describe immersion suits
1) qualities of an immersion suit
2) requirements as per SOLAS and Canadian regulations
3) demonstration of various types of immersion suits[*2] & [*3]

Demonstrate
a) proper way to put it on with necessary speed, and use attachments[*1]
b) proper way to put it on with necessary speed in the dark, and use attachments[*1]
c) entering water from a height and swimming while wearing an immersion suit[*1]
d) care and stowage[*2]

4.3) describe anti-exposure work suits
1) use and care
2) who should carry them on board their vessel

Demonstrate
a) proper way to put one on with necessary speed, and use attachments[*2]

4.4) describe thermal protective aids (TPA)
1) main purpose of a TPA
2) requirement to be carried on board

Demonstrate
a) proper use of a TPA[*2]

b) proper way to put a TPA on an unconscious casualty [*2] & [*]

4.5) describe lifebuoys and line-throwing devices
1) number required on a vessel, as per SOLAS and Canadian regulations
2) markings, color, vessel name, retro-reflective tape
3) lights and smoke signals
4) line-throwing devices
5) proper location on board the vessel

Demonstrate
a) how to correctly use a lifebuoy (throwing, entering and securing in it while in the water and waiting for rescue)[*2]
b) how to correctly use a line throwing device[*2] as per policy in section 1.11
c) how to use lifebuoys with self-igniting lights[*2]
d) mounting, proper procedure to use a self-activating smoke signal lifebuoy[*2] or [*3]

4.6) explain personal survival
1) discuss how to keep afloat without a lifejacket, immersion suit and/or anti-exposure suit (without any aid)

Demonstrate
a) how to stay together in the water[*2]
b) Heat Escape Lessening Posture (HELP)[*1]
c) how to swim as a group in a chain[*1] & [*]
d) how to form a huddle in the water[*1] & [*]
e) how to use a rescue blanket[*2]

4.7) describe lifeboats
1) identify and demonstrate different types of SOLAS lifeboats and rescue boats and their particularities[*3]
a) partially enclosed
b) totally enclosed
c) fire-protected and required on gas, chemical and oil tankers
d) free-Fall lifeboats
e) Ovatek
f) rescue boats
g) fast rescue boats
2) number and type requirements on board, as per SOLAS and Canadian regulations, depending on type of vessel
3) precautions to take during launching, including in rough weather
4) precautions to take during winter or in presence of ice
5) precautions to take with regards to the lifeboat engine

Demonstrate
a) how to get into lifeboats from ship and from water[*1]
b) how to correctly secure yourself in it[*1]
c) how to correctly secure an injured crew member[*2]
d) how to correctly launch a lifeboat that is securely fasted under davits[*2] &[*]
e) how to correctly use all equipment[*2]
f) how to start and use the lifeboat engine[*2]
g) how to care for and stow a lifeboat[*2]
h) various scenarios of lifeboat drills[*]

4.8) describe liferafts including equipment
1) the basic types and features of liferafts

2) stowage and releasing mechanism
3) SOLAS and Canadian regulation requirements, depending on the type of vessel
4) the differences in survival packs and gear
5) characteristics and operation of the hydrostatic release units, including limitation and expiry

Demonstrate

a) how to correctly launch an inflatable liferaft[*2]
b) how to board a liferaft from the water, while wearing a lifejacket [*1]
c) how to board a liferaft from the water, while wearing a survival suit[*1]
d) how to use the various gear and equipment in the survival pack[*2]
e) how to right an inverted liferaft while wearing a lifejacket[*1]
f) how to manoeuvre a liferaft and set the anchor to reduce drift[*2]
g) how to retrieve a man overboard (MOB)[*1]
h) care and stowage of liferafts[*2]
i) installation, including best position of the hydrostatic release[*2]

4.9) describe and demonstrate rigid hull liferafts and equipment

1) basic features of this type of liferafts[*2] or [*3]
2) proper stowage and releasing mechanism[*2] or [*3]
3) how and when to board the rigid hull liferaft from the ship's deck
4) maintenance as per manufacturer's recommended guidelines
5) special care when launching in presence of ice
6) how to beach safely

Demonstrate

a) how and when to correctly launch an rigid hull liferaft from the ship's deck[*2 or *3]
b) survival pack and how to use it[*2 or *3]
c) how to board a rigid hull liferaft from the water, with lifejacket and then with survival suits[*2 or *3]
d) how to manoeuvre the rigid hull liferaft and set the anchor to reduce drift*[2 or *3]
e) how to retrieve a man overboard (MOB) [*2 or *3]
f) dewatering of a rigid hull liferaft[*2 or *3]
g) care and stowage[*2 or *3]

4.10) demonstrate the actions to take after abandoning a vessel[*2] or [*3]

1) in a survival craft
2) in an inflatable or rigid hull liferaft
3) in winter and/or ice covered water
4) in very warm weather
5) if lifeboat engine does not start (how to use oars)
6) when rescue is far away

5) Damage control and evacuation **0.5 hr Lecture & 0.5 hr Practical**

Instructors will:

5.1) explain damage Control

1) discuss and demonstrate the theory of damage control to minimize the effects of damage and preserve a vessel's seaworthiness under the following situations[*3]
   a) pressurizing tanks, double bottoms, cofferdams
   b) shoring hatches, bulkheads

c) cement boxes, collision mats
d) jury rigs
e) engine room leaks

5.2) describe abandoning ship – last resort
1) the ship usually offers the best chance of survival and abandoning ship should only be undertaken if all other measures fail
2) how to prepare oneself for abandoning ship
3) the need to prevent panic, including when facing abandoning a passenger vessel
4) complications in abandoning ship caused by:
a) some survival craft not able to be launched
b) absence of lighting
c) absence of personnel assigned to certain duties
d) winter time (ice covered waters, etc)

5.3) demonstrate various types of evacuation systems, including SOLAS approved marine evacuation systems and platforms for passenger vessels[*3]

5.4) describe master's order to abandon ship

6) Survival **0.5 hr Lecture & 0.5 hr Practical**

Instructors will:

6.1) present factors relating to survival
1) factors affecting human response and performance in a survival situation
2) medical aspects of survival including thermal balance, water balance and energy balance

6.2) explain actions to take to increase chances of survival and rescue
1) demonstrate hypothermia prevention, recognition and treatment[*3]
2) stay near spot where vessel went down; stream the sea anchor
3) review of IMO MSC.1/Circ.1185/Rev 1 on survival in cold water
4) knowledge of the dangers associated to survival such as:
a) heat stroke, sun stroke, exposure to cold and hypothermia
b) effects of seasickness
c) failure to maintain body fluids correctly, causing dehydration
d) drinking seawater
e) fire or oil on water
f) sharks

7) Rescue **1 hr Lecture & 0.75 hr Practical**

Instructors will:

7.1) describe rescue equipment
1) description and use of:
a) rescue sling
b) rescue basket
c) rescue net

Demonstrate
a) rescue sling[*1]

b) rescue basket[*3]
c) rescue net*[2]

7.2) explain how to recognize and demonstrate signalling devices[*2] or [*3]
1) signalling flashlight
2) daylight signalling mirror (heliograph)
3) international signals

7.3) explain and demonstrate emergency position-indicating radio beacons (EPIRB)
1) different types of EPIRBs, including GPIRB, and how they are installed on board
2) operation, limitation and who requires to carry on board an EPIRB
3) how they work[*2] or[*3]

7.4) explain and demonstrate search and rescue transponders (SART)
1) use, function and which ships must carry a SART
2) mounting on the vessel
3) limitations
4) demonstrate how they work[*3]

7.5) explain and demonstrate VHF portable radios, including GMDSS radios
1) use and limitations
2) SOLAS and Canadian regulation requirements
3) demonstrate proper use throughout the course[*1]

7.6) explain and demonstrate pyrotechnics
1) classes of flares and their characteristics
2) circumstances in which each are to be used
3) markings on flares
4) expiry dates
5) care and stowage and the quantity to be carried on board

Demonstrate
a) main types[*2]

7.7) demonstrate boat rescue[*3]:
1) action to take on board a vessel
2) action to take on board a raft
3) towing and safety precaution/procedure

8) Helicopter assistance **0.5 hr Lecture & 0.5 hr Practical**

Instructors will;

8.1) explain communicating with the helicopter
1) demonstrates signals used[*2]
2) how to communicate with the helicopter through a shore station if the appropriate equipment is available

8.2) describe evacuation from ship and survival craft
1) the need to have a pick-up space on the ship clear of masts, rigging and other impediments
2) describe the means of evacuation from lifeboats and liferafts

8.3) explain and demonstrate helicopter pick-up[*2] or [*3]
1) demonstrate methods of pick-up by harness, stretcher and rescue basket
2) demonstrate hand and arm signals used for safe lifting

3) describe how the helicopter crew assists in pick-up
4) importance of obeying pilot's instructions

8.4) describe and demonstrate correct use of helicopter harness[*3]
1) describe the harness
2) demonstrate the correct way to put on the harness and adopt a safe posture in it

9) Maintenance and inspection of emergency equipment 0.5 hr Lecture & 0.5 hr Practical

Instructors will:

9.1) explain the importance of following manufacturer's guidelines, discuss periodic inspections and servicing and demonstrate proper maintenance of survival equipment, including special care and precaution during cold weather[*2] & [*3]:
1) lifejackets
2) immersion suits
3) anti-exposure work suits
4) lifebuoys and line throwing devices
5) liferafts including equipment
6) lifeboats and launching devices
7) rescue boats and launching devices
8) hydrostatic releases
9) communication equipment (VHF hand held radios)
10) pyrotechnics
11) EPIRBs
12) SARTs

9.2) describe fixed systems
1) proper maintenance
2) winterization

9.3) explain the importance of keeping records
1) repairs and updates
2) any incidents that concern safety equipment and its use
3) where are they kept on board your vessel

10.10 EVALUATION – PART 1

The evaluation consists of two parts:

1) 25 multiple-choice questions covering the complete knowledge and competency of the course. Passing mark to obtain the TCMSS training certificate is 70%.

2) practical assessment achieved during the course.
The following legend indicates which competency is part of the skill-based assessment:

[*1] this is part of the skill-based assessment, therefore every candidate must be able to demonstrate their competency.

[*2] not a skill requirement but must be demonstrated by the instructor and/or at least one candidate, depending on the amount of equipment available.

For demonstrations noted with a [*], every candidate must demonstrate during the course that he or she can act as a lead team member on at least one drill.

PART 2 – FIRE PREVENTION AND FIRE FIGHTING (STCW A-VI/1-2)

10.11 INSTRUCTOR QUALIFICATIONS

1) Teachers and Instructors must be qualified in the tasks they teach and be appropriately trained in instructional techniques and training methods as set out in section A-I/6 of Part A of the 2010 STCW Code.

2) In the case of a specialized marine training course, the main course instructor, in addition to holding qualifications for teaching, must have received appropriate training and hold a valid TC instructor approval letter;

3) **Note:** If the course is under the supervision of more than one instructor, the assistant instructors must hold the qualifications required by subsection 1.6 of this TP.

10.12 EQUIPMENT REQUIREMENTS

1) a two-storey steel rectangular vessel mock-up, measuring approximately 11m x 6m x 2.6m. The mock-up must include:

   - compartments such as cabins, corridors, open rooms, an electric switchboard room, an engine room with a grating floor, and connecting doors to give participants realistic exposure to shipboard fires; every room in the building must be readily accessible from the outside;
   - means for teaching participants how to use escape ladders and hatchways and how to effectively cope with engine room fires;
   - an efficient communication system whereby commands from a command post can be relayed to participants at the emergency locations within the mock-up; and
   - posters of escape routes

2) a fire box with an open top, with its front divided into compartments, in which participants can light and extinguish three types of fire. Alternatively, participants may use:

   - steel trays approximately 1m x 1m x 0.3m high with a raised back plate; or
   - an approved propane gas-fuelled fire simulator may also be used;

3) a steel or open concrete pit approximately 2.5m x 2.5m x 0.3m for simulating large oil fires (an approved propane gas-fuelled fire simulator may also be used);

4) means of simulating engine room bilge oil fires (an approved propane gas-fuelled fire simulator may also be used);

5) a complete firefighter's outfit for each participant (including protective clothing, coveralls, gloves, fire boots, helmet, and waterproof clothing);

6) steel trays for containing fires (or approved propane gas-fuelled fire simulator);

7) one smoke generator (smoke bomb can be used);

8) two fire hydrants with two outlets each, with keys and bars to operate the water supply;

9) enough fuel (wood, diesel fuel, lubricating oil, etc.) for the fire trays (enough gas if using an approved propane gas-fuelled fire simulator);

10) six approved nozzles of various types;

11) enough hoses and water pressure to supply at least two 38 mm nozzles at each live fire location (minimum two locations);

12) equipment for generating and applying high/medium/low expansion foam, and foam compound;

13) one International shore connection;

14) a set of self-contained breathing apparatus (SCBA), complete with spare cylinders, spare parts and maintenance tools for 100 % of the participants, one set for use by the instructors and for persons with beard refer policy as per subsection 1.11;

15) facilities and equipment for cleaning, inspecting, refilling and maintaining SCBA after use (or a memorandum of understanding with an approved facility);

16) various types of portable extinguishers (dry chemical, CO_2, water and foam) in sufficient number for every participant's practical demonstration;

17) two 36-meter life lines with snap hooks;

18) dummies, for search and rescue procedures;

19) different types of detectors used on board ships.

10.13 DURATION

A minimum of 23 hours

10.14 GOALS

To enable course participants to learn, understand and become proficient in:

1) shipboard fire fighting organization;

2) location of fire fighting appliances and emergency escape routes;
3) the elements of fire and explosion (the fire triangle);
4) types and sources of ignition;
5) flammable materials, fire hazards and spread of fire;
6) the need for constant vigilance;
7) actions to be taken on board ship;
8) fire and smoke detection and automatic alarm systems;
9) classification of fires and applicable extinguishing agents;
10) fire fighting equipment and its location on board;
11) fixed installations;
12) firefighters' outfits;
13) fire fighting appliances and equipment;
14) fire fighting methods;
15) fire fighting agents;
16) fire fighting procedures;
17) use of breathing apparatus for fighting fires and effecting rescues.

10.15 OUTLINE

SUBJECT AREA	HOURS	
	LECTURE	PRACTICAL
1) Introduction, safety and survival 1) Objectives 2) Safety Rules 3) Principles of Survival	0.75 hr	
2) Concept and application of the fire triangle to fire and explosion 1) Conditions for fires 2) Properties of flammable materials	0.5 hr	
3) Types and sources of ignition 1) Chemical 2) Physical 3) Biological	0.5 hr	
4) Flammable materials commonly found on board 1) Spread of fire 2) Safe practices	0.75 hr	
5) Need for constant vigilance 1) Need for constant vigilance 2) Patrol systems	0.5 hr	
6) Fire hazards 1) Fire hazards	0.5 hr	
7) Organization of shipboard fire fighting 1) General emergency alarm 2) Fire control plans and muster list 3) Communications 4) Personnel safety procedures	0.75 hr	0.5 hr

5) Periodic shipboard drills		
8) Location of fire fighting appliances and emergency escape routes 1) Ship construction arrangements 2) Emergency fire pump 3) Chemical powder application 4) Emergency escape routes	0.5 hr	0.25 hr
9) Fire spread in different parts of a ship 1) Fire spread	0.5 hr	
10) Fire and smoke detection measures on ships and automatic alarm systems 1) Fire and smoke detection systems 2) Automatic fire alarm	0.75 hr	
11) Classification of fires and appropriate extinguishing agents 1) Classification of fires and appropriate extinguishing agents	0.5 hr	
12) Selection of fire fighting appliances and equipment 1) Fire hoses and nozzles 2) Mobile apparatus 3) Portable fire extinguishers 4) Fireman's outfit 5) Fire lines 6) Fire blankets 7) Knowledge of fire safety arrangements 8) Fire alarms and first actions 9) Fire fighting 10) Fire fighting mediums 11) Fire fighting procedures 12) Breathing apparatus 13) Small fires 14) Extensive fires	2 hrs	10.5 hrs
13) Precautions for and use of fixed installations 1) General 2) Smothering effect systems: CO_2 and foams 3) Inhibitor effect systems: powders 4) Cooling effect systems: sprinklers, pressure spray	1 hr	
14) Maintenance and inspection of fire fighting equipment 1) Maintenance and inspection of fire fighting equipment	0.75 hr	1 hr
Evaluation Part 2	0.5 hr	Within the course hours
TOTAL	**10.75 hrs**	**12.25 hrs**
	23 hrs	

10.16 SYLLABUS

Legend for practical demonstrations	
*	This may also be achieved by using an approved propane gas-fuelled fire simulator.
*1	This is part of the skill-based assessment, therefore every candidate must be able to demonstrate their competency.
*2	Not a skill requirement but must be demonstrated by the instructor and/or at least one candidate, depending on the amount of equipment available.
*3	Knowledge may be covered using a video or an audio visual presentation

1) Introduction, safety and survival **0.75 hr Lecture**

Instructors will:

1.1) present the main objectives of the course
   1) knowing what to do if a fire or smoke is detected
   2) knowing what to do if the fire alarm is sounded
   3) how to raise the alarm and have basic knowledge of how to use portable fire extinguishers
   4) how to close and open the ship's fire-, weather-, and water-tight doors
   5) how to minimize the risk of fire and maintain a state of readiness to respond to emergency situations involving fire
   6) how to fight and extinguish fires

1.2) state participants must always follow the main instructor's safety rules during the course, including during practice drills

1.3) list the principles of survival in relation to fire as:
   1) regular training and drills
   2) preparedness for any fire emergency
   3) knowledge of actions to take when called to fire stations
   4) knowledge of escape routes
   5) knowledge of dangers of smoke and toxic fumes

2) Concept and application of the fire triangle to fire and explosion **0.5 hr Lecture**

Instructors will:

2.1) describe conditions for fire
   1) list conditions required for fire to occur as:
      a) the presence of material which acts as a fuel
      b) a source of ignition, e.g. chemical, biological or physical
      c) the presence of oxygen
   2) sketch how these three conditions can be represented as a triangle (the fire triangle) – concepts to prevent and extinguish fires
   3) sketch how adding a fourth condition, the "chain reaction" creates a "fire tetrahedron", which represents a continuously burning fire

2.2) describe properties of flammable materials
   1) define:
      a) flammability

b) ignition point
c) burning temperature
d) burning speed
e) thermal value
f) lower flammable limit (LFL)
g) upper flammable limit (UFL)
h) flammable range
i) flashpoint
j) auto-ignition

2) give one example of how static electricity can occur
3) explain reactivity
4) explain ignition sources

3) Types and sources of ignition 0.5 hr Lecture

Instructors will:

3.1) present fire prevention principles
1) give examples of how to prevent a fire from spreading by reducing or blocking:
a) conduction
b) radiation
c) convection currents
2) explain that removing any one element of fire triangle can prevent or extinguish a fire

4) Flammable materials commonly found on board 0.75 hr Lecture

Instructors will:

4.1) describe spread of fire
1) define:
a) conduction
b) radiation
c) convection currents
2) state that spread of fire occurs as a result of equalization in temperature between fire and surroundings via:
a) conduction
b) radiation
c) convection currents
3) list examples of each method of propagation
4) list four phases of fire development as:
a) ignition (incipient)
b) developing (surface fire)
c) absolute fire (fire in depth in solids)
d) burning out
5) state the temperature of a normal fire and the temperature in burning metals

4.2) explain safe practices
1) list general safety procedures, including:
a) no smoking in hazardous areas
b) cleanliness and good housekeeping

c) ability to recognize fire hazards and to take the necessary steps to prevent fires

2) for the engine room, list measures for reducing fire hazards, which include:
   a) ensuring insulation and lagging are kept in good condition
   b) eliminating oil leaks and preventing accumulation of oil
   c) taking proper fire precautions when welding or burning is being carried out
   d) checking that caps and cocks for sounding pipes to oil tanks are closed
   e) maintaining a clean engine room, removing oil-soaked rags

3) for the galley, list measures for reducing fire hazards, which include:
   a) keeping extraction fan and flue-gas duct clean
   b) ensuring cooking oils do not spill on top of stove or overheat in electrical cooking pans
   c) keeping electrical installations well maintained

4) for the accommodation areas, list measures for reducing fire hazards, which include:
   a) no smoking in bed
   b) no unauthorized electrical fittings
   c) no emptying of ashtrays into waste bins without ensuring all cigarette ends are extinguished

5) for cargo spaces, list measures for reducing fire hazards, which include:
   a) ensuring hatches are correctly cleaned
   b) ensuring cargo is stowed and ventilated in accordance with the rules
   c) prohibition of smoking during cargo-working periods
   d) securing of cargo
   e) inerting the atmosphere in cargo compartments when required

6) ensure hold/cargo compartment lights are switched off and cargo clusters disconnected, removed and stored away after use and before closing of hatches

5) Need for constant vigilance **0.5 hr Lecture**

Instructors will:

5.1) stress the need for constant vigilance
   1) state that prevention is by far the best method of combating a fire and this can be achieved by:
      a) constant vigilance
      b) preparedness
      c) fire patrol
      d) proper watchkeeping
      e) maintenance of equipment

5.2) explain patrol systems
   1) state that ships having more than 36 passengers must maintain an efficient patrol system
   2) list the duties of the patrol
   3) state that a fire patrol system is also advisable on other types of ships

6) Fire hazards **0.5 hr Lecture**

Instructors will:

6.1) describe fire hazards
1) list fire hazards in the engine room, including:
a) combustible liquids – fuel and lubricating oils
b) oil leaks and oil-soaked insulation
c) hot surfaces, e.g. exhaust pipes, engine parts overheating
d) defects in lagging
e) hot work, e.g. welding, cutting by oxy-acetylene torch
f) auto-ignition, e.g. oil dripping on hot surface

2) list hazards in galley, including:
a) combustible liquids, e.g. cooking oil, hot grease
b) hot surfaces, e.g. ovens, frying pans, flues
c) defective electrical connections

3) list hazards in accommodation, including:
a) combustible materials, e.g. furnishings, personal effects
b) matches and cigarette smoking
c) defective electrical connections

4) list hazards from cargoes, including:
a) self-heating cargo and spontaneous combustion
b) oxidizing cargoes and organic peroxides
c) compressed flammable gas
d) pyrophoric cargoes
e) explosives

5) list hazards from smokers and cigarettes, including:
a) temperature of a burning cigarette, which is about 500° C
b) carelessness with cigarettes and matches, setting fire to bedclothes, wastepaper bin contents and furnishings

7) Organization of shipboard fire fighting **0.75 hr Lecture& 0.5 hr Practical**

Instructors will:

7.1) explain the general emergency alarm
1) describe this signal as seven or more short blasts followed by one long blast on the ship's whistle and bells or klaxons or equivalent sounding elsewhere in the ship
2) describe the purpose of the special alarm operated from the navigating bridge to summon the crew to fire stations
3) list other possible fire alarms as:
a) CO_2
b) pump room
c) manually operated
d) UMS fire-detection system

7.2) explain fire control plans and muster list
- 1) describe the fire control plans and where they are located
- 2) describe the muster list
- 3) give examples of the duties of individual crew members
- 4) demonstrate various fire plans and muster lists from different types of vessels[*2] or [*3]

7.3) describe communications
- 1) describe the methods of communication used during a fire emergency as:
  - a) messengers
  - b) telephones
  - c) walkie-talkies
  - d) ship-to-shore VHF
  - e) public address system
- 2) describe communication procedure during a fire on board a passenger vessel

7.4) present personnel safety procedures
- 1) describe how a fire fighting team is made up and state who is in charge
- 2) state that no one may enter the fire zone unless orders to do so are given by the person in charge
- 3) state the need to be familiar with the area of the fire zone and with escape routes
- 4) state the need to be properly equipped to enter the fire zone, especially if the lights have failed and the space is full of smoke
- 5) state how one should be dressed
- 6) list required equipment, including:
  - a) breathing apparatus
  - b) hand lantern
  - c) axe
  - d) fireproof lifeline with fittings
- 7) explain and demonstrate how to use the lifeline for signalling[*2] or [*3]
- 8) state the need to be flexible in filling vacancies of key personnel in the fire parties

7.5) explain periodic shipboard drills
- 1) state the purpose of these drills
- 2) describe typical exercises for use during fire drills as:
  - a) extinguishing a fire in a deep fryer
  - b) entering a closed room on fire
  - c) extinguishing a major deck fire
  - d) rescuing an unconscious person from a smoke-filled space

Note: These exercises must be part of the drills during the demonstration of Section 12 of this part.

8) Location of fire fighting appliances and emergency escape routes

0.5 hr Lecture & 0.25 hr Practical

Instructors will:

8.1) describe ship construction arrangements
- 1) list the basic principles on various types of ships
- 2) state the location of emergency escape routes and how escape routes are protected
- 3) describe class A, B and C/F divisions

4) list the means for gas-freeing tanks
5) describe the purpose of and the means for inerting cargo spaces
6) explain briefly the fire prevention arrangements required in cargo spaces
7) SOLAS and Canadian regulations requirements on various types of ships

8.2) describe emergency fire pumps
1) state the number of acceptable jets of water the emergency fire pump must be able to supply
2) state the requirements for the location of this pump, depending on type of ship
3) state the circumstances under which to use the emergency fire pump
4) precaution when sailing in very cold weather

8.3) present emergency escape routes
1) state the emergency escape routes from machinery space to accommodation space, main deck and boat deck
2) state the emergency escape routes from accommodation space to main deck and boat deck
3) state the emergency escape routes from cargo pump room to accommodation space, main deck and boat deck
4) state emergency escape routes from cargo spaces and main deck leading to boat deck
5) explain that escape routes are well marked showing arrow and symbols
6) state that escape routes have an emergency lighting system
7) state that the emergency escape routes are used in reverse direction for access to the fire spot
8) demonstrate various types of ship's escape plans[*2] or [*3]

9) Fire spread in different parts of a ship **0.5 hr Lecture**

Instructors will:

9.1) explain fire spread
1) explain that a fire in machinery space will be contained in the machinery space itself and will not spread to accommodation, as accommodation is separated from machinery space by structural and thermal protection boundaries
2) state that a fire in cargo pump room will be contained in the cargo pump room itself and will not spread to accommodation, as accommodation is separated from cargo pump room by structural and thermal protection boundaries
3) state that all A-60 doors separating machinery space and cargo pump room must be shut in case of fire in respective spaces
4) state that all ventilation flaps must be shut in case of fire in machinery space and cargo spaces
5) state that accommodation fire will be contained in accommodation itself and will not be allowed to spread in machinery space and cargo pump room by structural and thermal protection boundaries
6) state that accommodation fire originating in galley, laundry, linen locker, common public spaces, and living spaces will be contained in the space of origin of fire and will not be allowed to spread to other parts of accommodation by using thermal protection and ventilation flaps/draught stops
7) state that the fire in any cargo hold will be contained in the affected cargo space itself by shutting hatch covers, ventilator flaps and using the fixed installation and other fire fighting appliances where provided
8) explain the principle of self-closing doors

10) Fire and smoke detection measures on ships and automatic alarm systems 0.75 hr Lecture

Instructors will:

10.1) explain fire and smoke detection systems
1) describe the construction of an automatic fire detection system
2) state the main types of automatic fire detectors
3) list the alarms or actions that a detector may activate
4) state the benefit of an automatic sprinkler system for detecting fires in passenger and crew accommodation

10.2) describe automatic fire alarms
1) describe the operation of an automatic fire alarm
2) describe a system that has fire zones and state where such a system may be installed in a ship

11) Classification of fires and appropriate extinguishing agents 0.5 hr Lecture

Instructors will:

11.1) present classification of fires and appropriate extinguishing agents
1) describe the classification of fires as:
a) class A fires: involving carbonaceous solid materials of organic nature, e.g. wood, cloth, paper, rubber, etc.
b) class B fires: involving flammable liquid or liquefiable solids, e.g. oils, greases, tars, paints, etc.
c) class C fires: involving electrical fire
d) class D fires: involving metals, e.g. magnesium, sodium and potassium
e) class K: involving galley fires

2) describe the extinguishing agents for various classes of fire as:

a) class A: water spray, water jet, flooding,
b) class B: foam, CO_2, dry chemical
c) class C: dry chemical, CO_2
d) class D: special dry powders
e) class K: wet chemical

3) state that electrical fires turn into any of these classes of fire, i.e. A, B, D or K once the circuit is turned off and dry chemical or CO_2 portable extinguishers are recommended

12) Selection of fire fighting appliances and equipment 2 hrs Lecture & 10.5 hrs Practical

Instructors will:

12.1) describe fire hoses and nozzles
1) state briefly the regulations related to fire hoses and nozzles
2) explain how to join hoses together and connect them to fire hydrants
3) explain how to adjust a nozzle to produce a concentrated jet, a spay or mist, and explain when and why to use each
4) explain how to correctly maintain and store hoses and nozzles

5) describe special care when sailing in cold weather

12.2) describe types of mobile apparatus
1) list the types of mobile apparatus available, including:
a) carbon dioxide cylinders
b) powder containers with propellant gas
c) foam-making equipment
2) describe areas where these are usually used
3) describe special care when sailing in cold weather

12.3) describe and demonstrate portable fire extinguishers
1) list the different types of portable extinguishers as:
a) water
b) foam
c) dry chemical
d) dry powder
e) carbon dioxide
f) wet chemical
2) demonstrate the operational principle of each type of extinguisher[*2]
3) state for which class of fire each type is suitable
4) state the normal capacity of each type of portable extinguisher
5) explain how to recharge empty extinguishers
6) describe a portable foam applicator and how it is used with the fire main
7) describe special care when sailing in cold weather

12.4) describe chemical powder application
1) describe a typical fixed powder apparatus with each container holding 250 kg of powder
2) explain how to use this equipment for best results

12.5) describe fireman's outfit
1) list the fireman's outfit in three sections as:
a) clothing (includes gloves, non-conductive boots, helmet, flashlight, fire axe, pants and jacket)
b) breathing apparatus
c) fireproof lifeline with snap hook and harness
2) list the two main types of breathing apparatus which may be used
3) list their relative advantages and disadvantages
4) state the requirements for the lifeline
5) describe special care when sailing in cold weather
6) demonstrate how to put on the complete gear in a timely manner[*1] **Note:** you can spread this demonstration out during drills

12.6) describe and demonstrate fire lines
1) describe a fire line (life line) as per Regulations
2) demonstrate how to use it[*2]
3) state how to store

12.7) describe and demonstrate fire blankets
1) describe a fire blanket
2) demonstrate how to use it[*2]
3) state where fire blankets are normally located

12.8) describe fire safety arrangements

1) state:
    a) the location and use of fire alarms
    b) the location and use of emergency controls
2) state the necessity of knowing how fire fighting equipment works
3) state the necessity of being aware of potential fire hazards

12.9) describing fire alarms and first actions
1) state actions on discovering a fire:
    a) activate the alarm
    b) inform control station
    c) restrict
    d) try to extinguish the fire

12.10) describe fire fighting
1) explain the factors to consider in deciding on fire fighting methods:
    a) accessibility of the fire's location
    b) personnel present at the fire's location
    c) reactions with the cargo/burning material
    d) equipment and fire fighting agents appropriate to the fire
2) explain the reasons for a re-flash watch

12.11) explain fire fighting mediums
1) list the fire fighting agents or mediums as:
    a) water in the form of solid jet, spray, fog or flooding
    b) foam as high, medium and low expansion
    c) carbon dioxide
    d) steam
    e) dry chemical powders

12.12) explain fire fighting procedures
1) state that when the fire alarm is given, fire procedures and emergency stations procedures take effect:
    a) crew assembles at the designated fire stations as given in muster list
    b) senior officer must do a head count
    c) the fire parties assemble, on orders from the bridge, and carry out their task aimed at containing the fire and extinguishing it
    d) the pumps are started to supply extinguishing water
    e) the master decides the most appropriate method for fighting the fire
2) state that the master controls the fire fighting operations from the bridge
3) state that when fire is extinguished, a fire watch is kept
4) state that the master begins an investigation into the cause of fire to avoid recurrence
5) state that if fire is in port, the master informs the shore authorities immediately
6) state that in cold weather, special procedure must be put in place

12.13) describe breathing apparatus
1) describe a self-contained breathing apparatus (SCBA)
2) demonstrate the correct way to fit the face mask of a SCBA and to check that it is airtight[*1]
3) list the mandatory checks to make on a SCBA before it is used and after it has been strapped on
4) demonstrate the correct breathing technique to give low air consumption for a particular exertion when using a SCBA[*1]

5) explain the reasons for not remaining in a toxic atmosphere until the SCBA air bottles are empty
6) explain that the pressure gauge is read at frequent intervals during use, and what action must be taken when the low air pressure warning signal is given on a SCBA
7) demonstrate how to check and use the SCBA breathing apparatus[*1]
8) demonstrate entering a small room using SCBA when the room is filled with non-toxic artificial smoke, using a lifeline as a signal line and take part in team exercise demonstrating communication with other team members while wearing SCBA[*1] &[*]
9) demonstrate how to search for persons (using dummies) in a smoke-filled space while wearing SCBA [*1]
10) demonstrate how to rescue missing crewmember (using dummies) during real fire fighting conditions, using various scenarios which include a passenger vessel[*1] &[*] (should cover rescuing passengers (dummies) and using the same mock up as passenger vessel areas, also planning, actions and communication should take passenger vessel scenario into account)

12.14) describe small fires

1) demonstrate the correct use of portable fire extinguishers, suited respectively for the following types of fires[*1]
    a) materials, e.g. wood
    b) oil
    c) grease
    d) plastics
    e) propane
    f) electrical

2) demonstrate how to extinguish a small fire using a hose with water jet and spray nozzles and with foam applicator, in a smoke-filled space (mock-up)[*1] & [*]
3) demonstrate how to use various types of portable fire extinguishers on fires in a smoke-filled space while wearing SCBA[*1] & [*]
4) demonstrate fire fighting techniques when dealing with a small fire, as per various lectures done within this course, using various scenarios (which must include at least one in cold weather and one on a passenger vessel)[*1] & [*] (planning, actions and communication should take concerned scenario into account, passenger vessel scenario to also cover rescuing passengers(dummies) and using the same mock up as passenger vessel areas)

12.15) extensive fires

1) demonstrate how to extinguish extensive fires of various types, including an oil fire, using as appropriate[*1]:
    a) water (jet, spray and fog application)
    b) foams, including aqueous-film-forming type (AFFF)
    c) powder, dry and wet
    d) CO_2

2) demonstrate how to extinguish extensive fire when wearing SCBA in smoke-filled enclosed spaces (mock-up), including an accommodation room or simulated engine room, and using as appropriate water (jet, spray or fog), foam or powder[*1] & [*]
3) demonstrate a complete fire drill[*]
4) demonstrate fire fighting techniques when dealing with an extensive fire, as per various lectures done within this course, using various scenarios (which shall include at least one

in cold weather and one on a passenger vessel)[*1] & [*] (planning, actions and communication should take concerned scenario into account, passenger vessel scenario to also cover rescuing passengers(dummies) and using the same mock up as passenger vessel areas)

13) Precautions for and use of fixed installations 1 hr Lecture

Instructors will

13.1) give a general overview
1) list the general requirements for a fixed system, including the following:
a) the medium used must not produce toxic gases
b) the quantity of the medium must be adequate for the spaces which are to be protected
c) the piping system must have control valves
d) the release of a gas medium must not be automatic
e) the order to release the medium must be given by the master or a senior officer
f) the system must be protected against the effects of cold weather

2) list typical fixed systems as:
a) carbon dioxide
b) sprinkler (wet and dry risers)
c) foam (low expansion)
d) foam (high expansion)
e) fire mains, hydrants
f) emergency generators, fire and bilge pumps
g) pressure water spray in special category spaces
h) chemical powder applicants
i) wet chemical applicants
j) demonstrate various types[*3]

13.2) describe smothering effect systems: CO_2 and foams
1) explain how CO_2 smothers a fire
2) state the advantages and dangers of CO_2
3) state the actions to take when the CO_2 alarm sounds
4) state in which spaces CO_2 is used
5) explain the action of foam on a fire
6) describe the actions to be taken before CO_2 or foam is released into the fire zone
7) describe the different types of foams
8) protection when sailing in cold climate

13.3) describe inhibitor effect systems: powders
1) state on which types of fire powders are used

13.4) describe cooling effect systems:

Sprinklers
1) explain how a sprinkler system works
2) state in which spaces the sprinkler system is used
3) define the special category spaces in which manually operated pressure water spray systems are normally used
4) protecting the system when sailing in cold weather

Fire hydrants

1) state the reason for fitting a shut-off valve to serve each hose
2) state the reason for fitting isolating and cross-over valves on the fire main
3) describe an international shore connection, giving the principal dimensions, and state its purpose
4) describe how it is connected
5) protecting the system when sailing in cold weather

14) Maintaining and inspecting fire fighting equipment 0.75 hr Lecture & 1 hr Practical

Instructors will:

14.1) demonstrate how to maintain and inspect fire fighting equipment[*2] & [*3]:

1) manufacturer's guidelines
2) periodic inspections
3) servicing
4) fire extinguishers:
    a) check gauges on pressurized extinguishers
    b) turn over to loosen dry powders
    c) be sure to set aside partially used or empty extinguishers for servicing
    d) weighing of CO_2 extinguishers
5) smoke and heat alarm systems
6) fire mains and equipment:
    a) relief valves
    b) leaks and corrosion
7) fixed systems
    a) all sprinkler heads are unobstructed
    b) check air pressure and water levels
    c) specific checks according to the type of system
8) winterization
9) record-keeping
    a) keep written records on all maintenance checks
    b) keep records of repairs and updates (maintenance log)
    c) keep records of any incidents that concern safety equipment and its use
    d) ensure that there is easy access to any manuals or written instructions
    e) where are they kept on board

10.17 EVALUATION – PART 2

The evaluation consists of two parts:

1) 25 multiple-choice questions covering the complete knowledge and competency of the course. Passing mark to obtain the TCMSS training certificate is 70%.
2) practical assessment achieved during the course.
   The following legend indicates which competency is part of the skill-based assessment:

   [*1] this is part of the skill-based assessment, therefore every candidate must be able to demonstrate their competency.

[*2] not a skill requirement but must be demonstrated by the instructor and/or at least one candidate, depending on the amount of equipment available.

For drills noted with a [*], every candidate must demonstrate during the course that he can act as a lead team member on at least one fire fighting drill.

PART 3 – PERSONAL SAFETY AND SOCIAL RESPONSIBILITIES (STCW-A-VI/1-4)

10.18 INSTRUCTOR QUALIFICATIONS

1) Teachers and Instructors must be qualified in the tasks they teach and be appropriately trained in instructional techniques and training methods as set out in section A-I/6 of Part A of the 2010 STCW Code..

2) In the case of a specialized marine training course, the main course instructor, in addition to holding qualifications for teaching, must have received appropriate training and hold a valid TC instructor approval letter;

   Note: If the course is under the supervision of more than one instructor, the assistant instructors must hold the qualifications required by subsection 1.6 of this TP.

10.19 EQUIPMENT REQUIREMENTS

Suitable teaching area with following personal protective equipment:
a) helmet
b) goggles
c) gloves
d) safety shoes
e) dust masks and respirators
f) protective clothing
g) self-contained breathing apparatus

10.20 DURATION

A minimum of 8 hours if followed by Parts 1 and 2 and a minimum of 12 hours if given as a stand-alone course. See section 10.22 – Outline.

10.21 GOALS

To enable course participants to learn, understand and become proficient in:

1) types of emergency situations which may occur, such as collision, fire, foundering;
2) shipboard contingency plans for response to emergencies;
3) emergency signals and specific duties allocated to crew members in the muster list; muster stations; correct use of personal safety equipment;
4) action to take on discovering potential emergency, including fire, collision, foundering and ingress of water into the ship;
5) action to take on hearing emergency alarm signals;
6) value of training and drills;
7) escape routes and internal communication and alarm systems;
8) basic knowledge of the impact of shipping on the marine environment and the effects of operational or accidental pollution on it;
9) basic environment protection procedures;

10) basic knowledge of complexity and diversity of the marine environment;
11) importance of following safe working practices at all times;
12) safety and protective devices available to protect against potential hazards on board ship;
13) precautions to take before entering enclosed spaces;
14) familiarization with international measures concerning accident prevention and occupational health;
15) contribution to effective communications on board ship;
16) basic team working principles and practice, including conflict resolution;
17) importance of maintaining good human and working relationships on board ship;
18) social responsibilities, employment conditions, individual rights and obligations, dangers of drug and alcohol abuse;
19) necessary actions to control fatigue.

10.22 OUTLINE

Note: This course must integrate role playing and table top demonstration/discussion. Using video may also be considered in some chapters of this course.

SUBJECT AREA	HOURS	
	Combined with Parts 1 and 2	**Stand-alone course**
1) Observe safe working practices 1) Introduction 2) Importance of the course 3) Ship familiarization 4) Nature of shipboard hazards 5) Equipment provided on board to counter these hazards 6) Use and demonstration of personal protective equipment 7) Operations that take place on board which can be hazardous to personnel or ship 8) Loading and unloading of cargoes 9) Mooring and unmooring 10) Enclosed spaces 11) Hot work 12) Working aloft 13) Engine room watchkeeping and maintenance	1 hr	3.5 hrs
2) Comply with emergency procedures 1) Explain the term "emergency" 2) Drills and muster 3) Value and need of drills and training 4) Internal communication	0.5 hr	1.5 hrs
3) Take precautions to prevent pollution of the marine environment 1) Define the term "pollution" 2) Effects of operational or accidental pollution of the marine environment 3) International measures for pollution prevention,	1.5 hrs	1.5 hrs

pollution avoidance and containment of pollutants 4) Pollution by sewage from ships 5) Pollution by garbage from ships 6) Control of oil discharge from machinery spaces and oil fuel tanks 7) Contents of Oil Record Book 8) Control of discharge of oil and special areas 9) Introduce contents of Annex VI of MARPOL		
4) Contribute to effective communications on board ship 1) Fundamentals of communication 2) Methods of communication 3) Barriers in communication 4) Effective transmission skills 5) Effective listening skills 6) Effective communication between individuals and teams 7) Effects and consequences of wrong communication 8) Communication sum-up; ability to establish and maintain effective communications	1.25 hrs	1.5 hrs
5) Contribute to effective human relationships on board ship 1) Interpersonal relationships (IPR) 2) Team building 3) Team work principles and practices 4) Conflict resolution	1 hr	1.25 hrs
6) Contribute to effective human relationships on board ship – Social responsibilities 1) Rights and obligation of crew 2) Employment conditions 3) Drugs and alcohol 4) Health and hygiene on board 5) Summing up	1.25 hrs	1.25 hrs
7) Understand and take necessary actions to control fatigue 1) Importance of getting the necessary rest 2) Effects of sleep, schedules and circulation rhythm on fatigue 3) Effects of physical stressors on seafarers 4) Effects of environmental stressors in and outside the ship and their impact on seafarers 5) Effects of schedule changes on seafarer fatigue	1 hr	1 hr
Evaluation Part 3	0.5 hr	0.5 hr
TOTAL	**8 hrs**	**12 hrs**
TOTAL	**20 Hrs**	

10.23 SYLLABUS

Legend for practical demonstrations	
*	This may also be achieved by using an approved propane gas-fuelled fire simulator.
*1	This is part of the skill-based assessment, therefore every candidate must be able to demonstrate their competency.
*2	Not a skill requirement but must be demonstrated by the instructor and/or at least one candidate, depending on the amount of equipment available.
*3	Knowledge may be covered using a video or an audio visual presentation

1) Observe safe working practices

1 hr if combined with Parts 1 & 2 or 3.5 hrs if stand-alone course

Instructors will:

1.1) Give an introduction
   1) state the aims and objectives of the course

1.2) Explain the importance of the course
   1) state that working on ship is a hazardous occupation to which a person is exposed as soon as he or she steps on board
   2) explain the necessity of understanding the hazards on board and equipment and procedures provided to avoid the hazards

1.3) describe ship familiarization
   1) identify likely hazards concerning:
      a) gangway and safety net
      b) main deck
      c) holds and hatches
      d) forecastle and poop deck
      e) windlass, anchors and winches
      f) cranes and derricks
      g) manifold and deck pipeline system (on a tanker)
      h) accommodation
      i) bridge
      j) engine room

1.4) describe nature of shipboard hazards
   1) list the various shipboard hazards as:
      a) slips, trips and falls due to slippery surfaces (oil, grease, garbage, water, ice, etc.) or obstructions (pipelines, welding cables, lashing eyes, wires, ropes, etc.)
      b) head injuries due to low doorway entrances, overhead loads, falling equipment or material, etc.
      c) falls through open manholes, unfenced 'tween-decks, loose or missing gratings, etc.
      d) clothing, fingers, etc. getting caught in moving machinery such as grinding wheels, winch drums, gears, flywheels, etc.
      e) burns from steam pipes, hot machinery, welding sparks, etc.
      f) eye injuries through chipping, welding, chemicals, etc.
      g) injuries and sliding/fall of unsecured equipment due to ship movements in rough weather
      h) hazards of extreme weather

i) lack of oxygen in confined spaces
j) presence of hydrocarbon gas and toxic gases
k) hazards of chemicals used on board
l) fire
m) collision/grounding/flooding/sinking
n) pirates and stowaways

1.5) describe equipment provided on board to counter these hazards
1) personal protective equipment:
a) helmet
b) goggles
c) gloves
d) safety shoes
e) dust masks and respirators
f) protective clothing
g) self-contained breathing apparatus

2) lifesaving appliances:
a) lifejackets
b) lifebuoys
c) liferafts
d) lifeboats
e) line-throwing apparatus
f) EPIRB and SART
g) TPAs and immersion suits

3) fire fighting appliances:
a) fire hoses, nozzles, hydrants and fire main
b) portable fire extinguishers
c) fire axe
d) fire-detecting system
e) fixed extinguishing system
f) portable electric drill

4) medical equipment:
a) resuscitator
b) stretcher
c) medicines
d) medical equipment

5) oil spill equipment:
a) absorbent pads
b) absorbent rolls
c) chemical dispersant
d) sawdust, brooms, dust pans, shovels and barrels
e) magnets for floating boom

1.6) describe and demonstrate personal protective equipment
1) head protection:
a) importance of the helmet
b) parts of the helmet and functions of each part
c) when to use the helmet

d) care of the helmet

2) gloves:
   a) necessity for gloves
   b) types of gloves and suitability of each type for different jobs

3) eye protection:
   a) importance of eye protection
   b) causes of injury to eye
   c) types of eye protection and the differences between them

4) ear protection:
   a) danger of excessive noise
   b) types of ear protection

5) respiratory protection:
   a) need for respiratory protection
   b) types of respiratory protection and suitability for use
   c) description and checks before using SCBA

6) safety footwear:
   a) need for safety shoes
   b) features of a safety shoe and differences from an ordinary shoe

7) safety harness

1.7) describe operations that take place on board that can be hazardous to personnel or ship
1) loading/unloading of cargoes
2) mooring
3) working aloft
4) handling of chemicals
5) engine room watchkeeping and maintenance
6) lifting loads (manually and mechanically)
7) entry into enclosed spaces
8) hot work
9) anti-piracy and stowaway operations

1.8) describe cargo loading and unloading
1) list the various ship types as general cargo vessels, bulk carriers, container ships, ro-ro and car carriers, tankers, chemical and gas carriers and passenger ships
2) state that, in general, cargo vessels, bulk carriers and container ships cargo is lifted on and off the vessel by cranes or derricks while bulk cargo is poured into the ship's hold by conveyor belts
3) state that the hazards on these vessels, in the holds and on the jetty alongside are mainly from overhead loads, lifting gear and cargo handling equipment such as trucks and forklifts
4) state that no unauthorized persons should be allowed into the working area
5) state that all personnel should use the offshore side of the deck
6) state that ro-ro ships and car carriers have several decks connected by ramps and cargo is driven on and off the vessel and up to the various decks via the ramps
7) state that cargo is driven at high speeds and any person standing in the way is likely to be run over

8) state that in tankers, chemical carriers and gas carriers cargo is in the liquid state and is pumped into and out from the ship through pipelines
9) state that the main hazard is from gas, which could be flammable, toxic or could cause a lack of oxygen
10) state that personnel working on these types of vessels must have special knowledge of the hazards involved and working procedures, which is covered in the tanker familiarization training course
11) state that passenger ships also may carry cars or other cargo, and includes ferries
12) state that in addition to deck and engine room staff, there may be a large number of cooks, waiters, housekeeping staff, shop and other service assistants, entertainment, medical and religious attendants, etc. and that personnel working on these ships must have a knowledge of crowd control, especially in emergency situations

1.9) describe mooring and unmooring
1) describe mooring as tying up a ship to a jetty, berth or pier
2) state that the lines used to tie up the ship are known as mooring lines or mooring wires
3) using a diagram, show the disposition of headlines and stern lines, breastlines and backsprings
4) state that mooring lines are extremely heavy synthetic lines around 100mm diameter or more and wires are around 50mm diameter, depending on the size of the ship
5) state that all mooring equipment – ropes, wires, heaving lines, stoppers, shackles, winches and windlass, etc. – must be checked to be in good order and condition before the operation
6) state that the ship is brought alongside by passing one or more lines ashore and heaving on these lines, using the windlass and mooring winches
7) state that these ropes and wires are risky to handle and can be extremely dangerous to those in the vicinity, especially when under stress
8) state that when the ropes or wires part under stress, they can cause a whiplash that can kill or dismember a person
9) state that persons engaged in mooring operations must be extremely careful and aware of the risks and stay well clear of a rope or wire under tension
10) state that this operation is more risky during strong winds, heavy seas or swell or rain or by the need for speed
11) state that persons should never stand in the bight of a rope or wire
12) state that the persons heaving the rope on the drum must hold it loosely and be ready to slacken it, should it slip under tension
13) state that mooring lines must be constantly checked and always kept taut
14) state that special attention must be paid when:
    a) loading and unloading at a high rate
    b) there is a large tidal range in the port or strong currents
    c) there are strong winds or at berths exposed to the sea

1.10) discuss enclosed spaces
1) define enclosed spaces as spaces where the ventilation is not kept running on a round-the-clock basis
2) list the possible enclosed spaces as forepeak tank, chain lockers, cofferdams, topside tanks, cargo tanks, ballast tanks, duct keel, after peak tank, bunker tanks, etc.
3) state that careless entry into such spaces has resulted in accidents, sometimes fatal, if the person is overcome by a lack of breathable atmosphere or is injured and not rescued in time
4) divide the hazards into:
    a) atmosphere hazards and

b) physical hazards

5) state that atmospheric hazards could result from:
   a) presence of hydrocarbon gas;
   b) presence of toxic gas; or
   c) deficiency in oxygen
6) state that due to the presence of hydrocarbon gas, a toxicity and flammability hazard arises
7) state that hydrocarbon vapours can be present due to:
   a) petroleum leakage
   b) retention in tank structure
   c) retention in pipeline
   d) disturbance of sludge/scale
8) state that other gases, such as NO, NO_2, SO_2, CO, benzene, H_2S, etc. can be a toxic hazard
9) state that these gases can evolve from cargo, ship's stores or ship operations
10) define a toxic hazard as harmful or poisonous to the body
11) define Threshold Limit Value and state that such gases should not be present in concentrations more than their TLVs
12) state that the atmosphere may become deficient in oxygen due to the causes listed below:
   a) ingress of inert gas (in inerted tank or leakage across from inerted tank into adjoining enclosed space)
   b) rusting
   c) paint drying
   d) hydrogen
   e) electrical cleaning fluids
   f) solvents/emulsifiers
   g) refrigerants
   h) burning
   i) flooding with CO_2 to fight a fire
   j) welding and gas cutting without proper ventilation
   k) operating an internal combustion engine in an enclosed space
   l) decay of organic matter, e.g. vegetables, grain, fruits, etc.
13) state that oxygen deficiency can result in anoxia
14) state that symptoms begin with giddiness, breathlessness and unconsciousness and progress onto brain damage causing memory loss, mental instability, paralysis, coma or death
15) state that physical hazards could cause a person to be physically or even fatally injured
16) state that physical hazards could include:
   a) darkness
   b) unsecured ladders
   c) slippery surfaces
   d) obstructions
   e) unguarded openings
   f) unsecured objects left from previous visit
   g) flooding
   h) getting trapped in accidentally
17) state that seafarers must take the following precautions before entering enclosed spaces:
   a) strictly follow an enclosed space entry permit system
   b) thoroughly ventilate the space and confirm by testing the atmosphere
   c) there must be:
      1) enough oxygen to support life – 21%
      2) too little flammable gas for the purpose; and
      3) toxic gas must be less than the TLV

18) state that seafarers must use proper protective equipment – overalls, hard hat, safety shoes, etc. and approved torch lights, non-sparking tools, etc.
19) state that seafarers must exercise sea vigilance and alertness, monitor the atmosphere and observe all precautions while the job is underway
20) state that personnel must be cautioned against overconfidence or negligence
21) state that protective clothing and the workplace must be cleaned up after the job is done and things left neat and tidy
22) briefly discuss the contents of an enclosed space entry permit

1.11) discuss hot work
1) define hot work as any work that generates heat or sparks hot or intense enough to ignite a flammable gas-air mixture
2) list welding, cutting, burning, heating, chipping and use of some power tools generating heat, open flame, electric arc or continuous sparks as some examples of hot work
3) list the hot work hazards as fire, explosion, heat injuries, strong light injuries (ultraviolet light affecting eyes) and shock injury to personnel
4) group the areas on board where hot work is carried out in ascending order of danger as:
    a) engineer's workshop
    b) engine room
    c) poop deck and accommodation
    d) cargo area
5) briefly discuss the contents of a hot work permit

1.12) discuss working aloft
1) describe working aloft as working at a height above the ground or deck where the primary hazard is falling and consequent injury
2) state that working overside can also be considered to be working aloft
3) list examples of various jobs on board where working aloft is necessary, e.g.:
    a) painting bridge front bulkhead, masts, engine room deckhead
    b) cleaning or painting funnel
    c) greasing, maintenance or repair of radar scanner, crane or derrick blocks and wires
    d) chipping, painting, cleaning or inspecting tanks or holds
    e) painting the ship side, underside of flying bridge wings, etc.
4) list the hazards of working aloft as:
    a) falling from a height due to loss of balance, failure of ropes, etc.
    b) injury due to falling material or equipment
    c) burns due to contact with hot surfaces such as the funnel or steam from the whistle
    d) emission of carbon dioxide or toxic gasses from the funnel due to combustion, incineration, soot blowing, etc.
    e) exposure to wind and cold
    f) electric and radiation hazard due to proximity with radar scanners or radio aerials
5) state that notice must be given to the responsible person concerned before starting work, e.g.
    a) duty engineer when working in the vicinity of the funnel to refrain from soot blowing or incineration or to shut off steam to the whistle when working near it
    b) bridge watchkeeping officer when working near radar scanners
    c) bridge watchkeeping officer or radio officer when working near radio aerials or satellite communication dome
    d) chief officer when working on deck
6) state that equipment whose operation is a hazard to the work must be locked or tagged with the responsibilities vested in a responsible officer

7) state that these checks and procedures may be covered by a checklist or a permit-to-work system
8) list the equipment used for working aloft as:
    a) gantlines
    b) safety lines
    c) wooden stages or bosun's chairs
    d) hooks and shackles
    e) fall arresters
    f) ladders, scaffolding, etc.
9) state that this equipment should be stowed in a separate locker away from paints or chemicals
10) state that this equipment is to be used ONLY for working aloft
11) state that this equipment must be checked by a person who is competent to detect faults in wood and rope before every use
12) state that knots, hitches and turns should be correctly and carefully made to prevent slipping, especially when using synthetic ropes
13) state that stages or bosun's chairs should not be hoisted or lowered by winch
14) state that anchoring points for safety lines or suspension point for gantlines should be strong and not subject to movement
15) state that ropes should not run over hot surfaces or sharp edges
16) state that a safety net should be rigged whenever possible, especially under a free hanging stage
17) state that stages should be secured against ship movement, especially if they are free hanging
18) state that work aloft should not be carried out while the ship is moving violently in a seaway
19) state that tools or materials should be passed in a bucket or by a rope and never thrown
20) state that seafarers should use ladders to climb onto or from a stage, and not the ropes that suspend the stage
21) state that rigid ladders should be placed on a firm base
22) state that tools or equipment should be secured and not placed at the edge, where they can fall
23) state that inexperienced persons or those under 18 years of age should not be sent to work aloft or overside
24) state NEVER work overside while the ship is underway
25) state that, in addition to normal protective equipment, wear a buoyant vest or lifejacket
26) state that lifebuoys with heaving line and light should be kept in readiness

1.13) discuss engine room watchkeeping and maintenance
1) show the general layout of an engine room with the help of movies, slides or photographs
2) list the machinery located in the engine room:
    a) main engines
    b) generators or alternators
    c) boilers
    d) compressors
    e) pumps
    f) motors
    g) electrical equipment
3) state that other equipment that may be located in the engine room includes:
    a) steering gear
    b) refrigeration machinery

c) hydraulic or pneumatic equipment
d) two-way portable VHF
e) lead-acid batteries

4) state that injuries suffered in the engine room could be:
   a) burns from contact with steam pipes, hot surfaces, welding sparks, etc.
   b) head injuries from overhead obstructions or falling objects
   c) slips, trips or falls on companion ways, from open floor plates, protruding parts or incautious haste
   d) hearing loss from constant exposure to high decibel noise
   e) contact with moving parts of machinery such as grinder wheels, flywheels, propeller shaft
5) state that use of proper protective equipment is absolutely necessary
6) state that good housekeeping and safe working practices can prevent accidents
7) give examples of good housekeeping as:
   a) oil or water leaks are immediately attended to
   b) oil spills are immediately cleaned and oil-stained lagging replaced
   c) oily rags or cotton waste are properly disposed of in a closed container and not left lying around to ignite spontaneously
   d) tools are attended to during work, so that they do not fall off ledges or platforms, and are properly collected and stowed after work
   e) guards for moving parts of machinery are in position and in good condition
   f) equipment, stores and parts of opened-up machinery are lashed and secured against movement
   g) all parts of the engine room are adequately lighted
   h) bilges are kept clean and dry
   i) bottom platform gratings are never left open unless the area is fenced and warning signs are posted
   j) access to fire fighting equipment, escape routes and emergency exits are not obstructed by stores or equipment
8) state that safe working practices should include:
   a) proper locking and tagging of machinery under repair to prevent inadvertent starting
   b) proper checks of equipment used for lifting or other purposes before use
   c) proper calibration of test equipment
   d) proper tests of enclosed spaces before entry
   e) use of proper tools for the job and in the proper way

2) Comply with emergency procedures

0.5 hr if combined with Parts 1 & 2 or 1.5 hrs if stand-alone course

Instructors will:

2.1) explain the term “emergency”
   1) emphasize an emergency being a situation of imminent danger:
      a) of loss of life
      b) of injury
      c) of loss of or damage to property
      d) of damage to environment
   2) emphasize the need for immediate action in an emergency
   3) list various emergencies that may occur on board ships:

a) fire
b) collision
c) grounding
d) foundering
e) man overboard
f) ingress of (taking in) water
g) heavy weather
h) oil spill, etc.

4) describe shipboard contingency plans for responding to emergencies mentioned above
5) state the alarm systems available on board ships and their locations:
   a) ship general alarm
   b) fire alarm
   c) ship's whistle, etc.
6) state the various emergency signals to indicate emergency situations

2.2) explain drills and muster
1) describe general structure of muster lists:
   a) specific duties allocated to crew members
   b) division of crew in various squads and teams
   c) muster station
   d) emergency headquarters, etc.
2) state action to take on hearing emergency alarm signals and discovering potential emergencies as mentioned above:
   a) dress yourself adequately and properly
   b) go to muster station
   c) find out nature of the emergency
   d) take action as per muster list

2.3) explain the value of and need for drills and training
1) state the three aspects of needs of drills and training, e.g.
   a) regulatory or legislative needs, i.e. requirements of SOLAS, MARPOL, STCW, ISM, etc.
   b) operational need – to ensure correct and effective action, can only be achieved by regular and realistic drills
   c) state of mind, e.g. on exposure to an emergency, all persons are affected and there is general dip or reduction in performance. This dip in performance can only be compensated for by regular or realistic drills

2.4) discuss internal communication
1) explain various internal communications in use on board ships – especially for emergency situations, e.g.
   a) telephone
   b) emergency powered or sound-operated phone
   c) public address systems
   d) lifeboat VHF
   e) walkie-talkies
   f) emergency alarms, etc.
2) list their location and operation
3) describe probable location of emergency escape routes on board ships
4) explain need of knowledge of number and locations of escape routes

3) Take precautions to prevent pollution of the marine environment
1.5 hrs if combined with Parts 1 & 2 or 1.5 hrs if stand-alone course

Instructors will:

3.1) define term "pollution"
1) explain pollution caused by human activities and nature
2) list main sources of marine pollution
3) state pollutants discharged or likely to be discharged by ships due to operational or accidental causes
4) explain causes resulting in marine pollution at sea by ships:
a) strandings and collision
b) lightening operations
c) unchecked garbage and sewage disposal
d) tank cleaning, washing and line flushing
e) unchecked chemical disposal in bulk or packaged form
f) deballasting

3.2) describe effects of operational or accidental pollution of the marine environment
1) state impact of pollution on marine life and food chain
2) explain hazards posed by chemical, sewage and garbage disposal
3) explain hazards to human beings, animals and livelihood of human beings due to pollution of marine environment

3.3) describe international measures for preventing and avoiding pollution and containing pollutants
1) briefly describe contents of MARPOL 73/78
2) describe segregated ballast tanks
3) describe double-hull design
4) describe reception facilities
5) explain sewage disposal arrangements and garbage management plan / record book
6) explain contents and purpose of the shipboard oil pollution emergency plan (SOPEP)
7) describe garbage disposal arrangements and handling
8) state shipboard organization to deal with pollution
9) describe interface between shipboard and shore organization
10) explain obligation to report pollution incidents
11) state when to report pollution incidents
12) state to whom to report pollution incident
13) describe structure of oil spill response team and assigned duties to officers and crew
14) explain measures for control of oil spills
15) describe shipboard response to oil spills due to various causes
16) explain importance of shipboard drills to deal with pollution of the marine environment

3.4) discuss pollution by sewage from ships
1) define what constitutes sewage
2) explain prohibition on discharge of sewage and exceptions depending upon distance from nearest land
3) define comminuted and disinfected sewage, briefly gives details of holding tanks and approved sewage treatment plant

3.5) discuss pollution by garbage from ships
1) define garbage

2) describe disposal of garbage outside special areas / prohibited zones

3.6) explain control oil discharge from machinery spaces and oil fuel tanks
1) give brief details of MARPOL requirements for oily-water separating equipment and oil filtering equipment

3.7) describe the Oil Record Book
1) state purpose of Oil Record Book
2) list entries made in the book

3.8) explain control of discharge of oil and special areas
1) give details of special areas
2) state requirements of regulation IX of MARPOL 73/78
3) describe provisions of methods for preventing oil pollution from ships while operating in special areas

3.9) introduce the contents of Annex VI of MARPOL
1) state that Annex VI sets limits on sulphur oxide and nitrogen oxide emissions from ships

4) Contribute to effective communications on board ship
1.25 hrs if with Parts 1 & 2 or 1.5 hrs if stand-alone course

Instructors will:

4.1) present the fundamentals of communication
1) state that good communication is the most essential element of safety and pollution prevention on board
2) state that people's co-operation can be achieved by effective communication
3) state the effective communication is the basic element for human survival
4) state that language is a means of transmitting ideas, views, instructions, etc.

4.2) describe methods of communication
1) list basic elements of communication as:
a) sender
b) receiver
c) modes of transmission
d) methods of transmission
e) barriers to communication
f) feedback
2) state that feedback is essential in ship's communication
3) list methods of communication
4) classify them under the following heads:
a) verbal, e.g. reading, speaking, writing and any communication using words
b) non-verbal, e.g. body language, sounds, gestures
c) iconic, e.g. signs, figures, diagrams, pictures and photographs
5) state that all three methods need to be effectively used on board for proper understanding
6) state that verbal communication includes all communication pertaining to words, including reading, writing and speaking
7) state that body language and pictorial symbols are more powerful means of communication than verbal means alone

4.3) explain barriers in communication
1) state that there are barriers in each step of the basic communication process

2) list the barriers as:
    a) transmitter's conceptualization stage
    b) transmitter's capability
    c) mode of transmission
    d) media of transmission
    e) receiver's capability
    f) receiver's understanding of the concept
    g) feedback stage
    h) receipt of feedback by transmitter
3) demonstrate barriers at each of above

4.4) discuss effective transmission skills
1) state that the effectiveness of communication lies primarily with the sender
2) state that the sender should define the purpose of the particular communication
3) explain the importance of time, place and person addressed in the context of initiating the communication
4) state importance of language and vocabulary, e.g., examples of usage of maritime English
5) state that understanding the different kinds of barriers in communication helps improve transmission
6) state that the sender must be capable of effectively speaking, writing, acting, drawing and using available sounds signalling apparatus
7) demonstrate above skills to the trainer
8) describe that effective transmission can be checked by the feedback from the receiver
9) describe that this responsibility lies with the sender

4.5) discuss effective listening skills
1) state that listening is the responsibility of the receiver
2) explain difference of hearing versus listening
3) demonstrate difference of hearing/listening
4) state that understanding the various barriers of listening will improve listening capabilities
5) state that there are internal and external barriers to listening and appreciating the effect of barriers on listening described earlier
6) describe that human being are capable of speaking at a rate of 150 words per minute whereas they can listen at a rate of about 1000 wpm
7) state that this results in idle time of 850 wpm, which makes the mind wander
8) state that ideally this idle time should be used for paraphrasing the body language and other signals from the speaker

4.6) stress the need for effective communication between individuals and teams with the following objectives:
1) Improves safety
2) Improves efficiency of operations
3) Improves effectiveness of actions
4) Team members understand their roles and roles of everyone else on the team.
5) Improves understanding among the team members for what needs to be done.

4.7) describe effects and consequences of wrong communication
1) state that a wrong communication can affect safety of life, property and the environment
2) state that it causes human problems and problems in relationships on board
3) state that improper communication causes stress, loss of time, loss of resources and even ship's profitability
4) demonstrate cause / effect through an exercise

4.8) summarize communications; ability to establish and maintain effective communications
1) state that effective communication creates the atmosphere conducive to safe working, happy living and sociable relationship among fellow shipmates
2) state that habits, values and attitudes can also be modified by effective communication and knowing the basics of interpersonal relationships, learning skills and team skills

5) Contribute to effective human relationships on board ship
1 hr if with Parts 1 & 2 or 1.25 hrs if stand-alone course

Instructors will:

5.1 discuss interpersonal relationships (IPR)
1) state that good relationships make the life of all seafarers more comfortable, healthy and less prone to accidents
2) describe the elements that help improve relationships like:
    a) company policies
    b) function of shipboard management
    c) clarity of responsibilities with reference to shipboard functions
    d) structure and flow of authority
    e) importance of understanding needs:
        i. individuals needs
        ii. ship needs
        iii. company needs
        iv. social needs
3) state that everyone should respect each other's individuality, value, culture and purpose of work
4) state that open communication will enhance IPR
5) state that shipboard environments demand better IPR from seafarers during both on-duty or off-duty hours
6) describe methods to improve IPR on board evolved from:
    a) introducing and understanding each other
    b) commitment of senior officers
    c) valuing of individual differences rather than maximizing weakness
    d) fairness in dealing with personnel
    e) true appraisals and reporting
    f) discipline on board

5.2) discuss team building
1) state that the shipboard operation is team work and its effectiveness depends on effectiveness of the team member
2) state that teams promote better decision making
3) describe:
    a) team goals/aims/objectives
    b) role of individual members
    c) need of cohesiveness
4) list deterrents to team operation
5) discuss deterrents such as:
    a) distortion of aims
    b) inflexible behaviour of members
    c) groupism
    d) status/ego problems

e) hidden agendas
f) communication problems
g) physical/environmental problems
h) handling of grievances/counseling

6) briefly describe each with reference to the shipboard environment

5.3) present and describe teamwork principles and practices

1) explain that teamwork is essential on board for reasons such as:
   a) the shipping company includes a number of small mobile industrial units (the ships) which may at any particular moment be distributed over large distances throughout the world
   b) when making a voyage, the ship can undergo considerable climatic changes, which may adversely affect personnel
   c) ships are operational for 24 hours each day, and the crew must be organized in regulated shift system, so the people on board are well rested and fit for duty at all times
   d) the personnel on the ship must be organized to operate the ship safely and effectively with numerous operations being performed simultaneously, e.g.
      i. watchkeeping at sea and in port (navigation and machinery operation)
      ii. cargo operations
      iii. maintenance of hull, machinery and equipment
      iv. safety checks and drills, emergency actions
      v. repair/dry-docking
      vi. stocking provisions, cooking food, housekeeping
      vii. communication ship – shore – ship
      viii. the crew must be able to operate with a high degree of responsibility and flexibility

5.4) discuss conflict resolution

1) Communication
2) Conflict analysis
3) Conflict theory & content
4) Application
5) Ethical principles

6) Contribute to effective human relationships on board ship – Social responsibilities
1.25 hrs if combined with Parts 1 & 2 or 1.25 hrs if stand-alone course

Instructors will:

6.1) explain rights and obligations of crew

1) state that each crew member has a social responsibility to his ship, himself, his colleagues, to the company, and to the environment
2) describe his rights, such as:
   a) right to his convictions
   b) right to express his conviction
   c) right to make a request of another as long as he can appreciate that the other has a right to say no
   d) right to clarify communications to enhance interpersonal relationships

3) describe his obligation towards employer
4) state that shipping is a commercial activity and profit making is part of the operation
5) state that the employee must discharge his duties sincerely to the fullest of his capabilities
6) state that he could be responsible towards the three elements of the shipping operation, namely, company, government and individual
7) state that there is dignity in labour
8) state that there are responsibilities towards:
    a) obedience, respect, discipline and following orders of his superiors
    b) abiding by company's policies as laid down in the safety manuals and rules and regulations governing flag State requirements and other mandatory legislation
    c) following the safety and environment protection policy at all times and to help fellow seamen in distress, search and rescue operations and oil pollution mitigation operations

6.2) describe employment conditions
1) describe employment conditions such as:
    a) employment contracts
    b) his rights
    c) national and international requirements

6.3) discuss drugs and alcohol
1) state that there are international and national regulations against the use, carrying or distributing of any drug or alcohol
2) state that the punishment for above could be very, very severe
3) describe some examples from recent reports
4) describe dangers of drug and alcohol abuse:
    a) how drugs and alcohol affect a human body – their harmful effects and some misconceptions about alcohol providing heat to the body in cold climates
    b) dangers of getting involved in drug trafficking/smuggling
    c) company's drug and alcohol policy
    d) narcotics and contraband search
5) describe Port State, Flag State and other authorities' methods of detecting drug/alcohol consumed

6.4) discuss health and hygiene on board
1) state that it is a moral responsibility of all on board to observe hygiene and promote good health
2) state that cleanliness and good housekeeping is fundamental to good health
3) state that ship's personnel must be highly motivated:
    a) state that there is a definite relation between human needs and motivation
    b) state that delegation can be a powerful tool in motivating people

6.5) give a module summary
1) state the importance of IPR
2) state that delegation, trust and good relations are motivational
3) state that drug and alcohol abuse can be very costly and may lead to prosecution of ship or/and the individual, and may also result in dismissal and/or permanent loss of sea careers

7) Understand and take necessary actions to control fatigue
1 hr if combined with Parts 1 & 2 or 1 hr if stand-alone course

Instructors will:

7.1) explain the:

1) importance of getting enough rest
2) effects of sleep, schedules and circulation rhythm on fatigue
3) effects of physical stressors on seafarers
4) effects of environmental stressors in and outside the ship and their impact on seafarers
5) effects of schedule changes on seafarer fatigue

10.24 EVALUATION – PART 3

The evaluation consists of 25 multiple-choice questions covering the complete knowledge and competency of the course. The passing mark to obtain the TCMSS training certificate is 70%.

11 REFRESHER TRAINING COURSE IN STCW BASIC SAFETY (REF- STCW BS)

11.1 GENERAL

1) this course meets the requirements of Chapter VI, Section A-VI/1, paragraph 3 of the STCW Convention, including 2010 Manila Amendments.

2) seafarers qualified in basic training as set out in Chapter VI, Section A-VI/1, paragraph 2 of the STCW Convention must, every five years, provide evidence of having maintained the required standard of competence to undertake the tasks, duties and responsibilities listed in column 1 of tables A-VI/1-1 and A-VI/1-2 of the Convention.

11.2 EQUIPEMENT REQUIREMENTS

1) a SOLAS approved and equipped lifeboat, that fully meets the LSA Code requirements for cargo vessels. The lifeboat must be fitted under davits, allowing direct launching into the open water. The lifeboat release and retrieval system must comply with the new IMO resolution MSC 320 (89). **Note:** While the lifeboat does not need to be approved for use at sea, it must be a training model similar to those on SOLAS cargo vessels);
   Or
   equipment as mentioned under subsection 1.10 of section 1, with conditions as listed under subsection 3.4;

2) one SOLAS approved inflatable liferaft (minimum 12 persons) with equipment that meets the requirements of the LSA Code for cargo vessels, fitted with an approved davit. **Note:** While the davit does not need to be approved for use at sea, it must be a training model of those found on SOLAS cargo vessels);

3) one Ovatek or other approved brand rigid hull liferaft (minimum capacity of 4 persons) with equipment (can be replaced by an audio-visual presentation);

4) one SOLAS approved lifejacket for each participant including three inflatable lifejackets;

5) a variety of immersion suits suitable for 100% of the participants, including at least two SOLAS approved anti-exposure work suits. **Note:** Schools must introduce a policy in their quality management system stating that at registration they will advise candidates with special needs that they may need to bring their own gear;

6) two approved lifebuoys, one with a line and the other with an approved light and buoyant smoke signal;

7) one of each: rescue sling and rescue net;

8) one re-boarding device;

9) a line throwing device that can be demonstrated each course;

10) a variety of hand flares, parachute rockets and day smoke signals;

11) two portable 2-way radiotelephones approved for use in survival craft or a GMDSS radio, or other that meets the functional equivalency;

12) paper or PDF copies for the candidates review, of:

    a) TP 14335 – Winter Navigation on the River and Gulf of St. Lawrence,

    b) Ice Navigation in Canadian Waters, 2012 edition,

    c) relevant Transportation Safety Board (TSB) cases from previous accidents involving passenger-carrying vessels,

    d) international Life-Saving Appliance Code (LSA Code),

    e) IMO Guidelines for Evaluation and Replacement of Lifeboat Release and Retrieval systems, MSC.1/circ.1392;

13) access to open water or to pool facilities suitable for teaching and demonstrating the use of the equipment. The facility must have a platform so candidates can demonstrate entering water from a height;

14) a two-storey steel rectangular vessel mock-up, measuring approximately 11m x 6m x 2.6m. The mock-up must have:
    - compartments such as cabins, corridors, open rooms, an electric switchboard room, an engine room with a grating floor, and connecting doors, so as to expose participants in a realistic manner to shipboard fires; every room in the building must be readily accessible from the outside;
    - means to teach participants how to use escape ladders and hatchways and how to effectively cope with engine room fires;
    - an efficient communication system whereby commands from a command post can be relayed to participants at the emergency locations within the mock-up; and
    - posters of escape routes.

15) a fire box with an open top and with its front divided into compartments, in which participants can light and extinguish three types of fire. Alternatively, course providers may use:
    - steel trays approximately 1m x 1m x 0.3m high with a raised back plate
    - an approved propane gas-fuelled fire simulator;

16) a steel or open concrete pit approximately 2.5m x 2.5m x 0.3m for simulating large oil fires (or an approved propane gas-fuelled fire);

17) means of simulating engine room bilge oil fires (or an approved propane gas-fuelled fire simulator);

18) a complete firefighter's outfit for each participant (including protective clothing, coveralls, gloves, fire boots, helmet, and waterproof clothing);

19) steel trays for containing fires (or approved propane gas-fuelled fire simulator);

20) one smoke generator (smoke bomb can be used);

21) two fire hydrants with two outlets each, with keys and bars to operate the water supply;

22) enough fuel (wood, diesel fuel, lubricating oil, etc.) for the fire trays (enough gas if using an approved propane gas-fuelled fire simulator);

23) six approved nozzles of various types;

24) enough hoses and water pressure to supply at least two 38 mm nozzles at each live fire location (minimum two locations);

25) equipment for generating and applying high/medium/low expansion foam, and foam compound;

26) one International shore connection;

27) a set of self-contained breathing apparatus (SCBA), complete with spare cylinders, spare parts and maintenance tools for 100 % of the participants, one set for use by the instructors. For persons with beard, refer policy as per subsection 1.11;

28) facilities and equipment for cleaning, inspecting, refilling and maintaining SCBA after use (or a memorandum of understanding with an approved facility);

29) various types of portable extinguishers (dry chemical, CO_2, water and foam) in sufficient number for every participant's practical demonstration;

30) two life lines (36 meters long) with snap hooks;

31) dummies, for search and rescue procedures.

11.3 DURATION

A minimum of 16 hours

11.4 PRE-REQUESITE AND MINIMUM AGE

1) a person must be at least 16 years of age to take the REF- STCW BS course.
2) the Fire prevention and fire fighting part of the course as set out in A-VI/1-2 of the STCW Code may require a fit test before joining. For further details contact the recognized institution.
3) a person must hold a training certificate in STCW Basic Safety or equivalent under subsection 2.2 of chapter 2 of this TP to take this course.

11.5 INSTRUCTOR QUALIFICATIONS

1) Teachers and Instructors must be qualified in the tasks they teach and be appropriately trained in instructional techniques and training methods as set out in section A-I/6 of Part A of the 2010 STCW Code.

2) In the case of a specialized marine training course, the main course instructor, in addition to holding qualifications for teaching, must have received appropriate training and hold a valid TC instructor approval letter;

3) **Note:** If the course is under the supervision of more than one instructor, the assistant instructors must hold the qualifications required by subsection 1.6 of this TP.

11.6 GOALS

This refresher training course is designed to comply with the regulations and to refresh the seafarers' skills in basic emergency duties through demonstrations and practical drills and exercises.

11.7 OUTLINE

SUBJECT AREA	HOURS	
	LECTURE	PRACTICAL
1) Introduction and safety 1) Introduction 2) Principles of safety	0.75 hr	
2) Hazards and emergencies 1) Crew expertise – reminder	0.25 hr	
3) Lifesaving appliances and abandonment 1) Lifejackets 2) Immersion suits 3) Anti-exposure work suits *4)* Thermal protective aids 5) Lifebuoys and line throwing devices 6) Personal survival 7) Lifeboats 8) Liferafts including equipment 9) Rigid hull liferafts and equipment 10) Demonstrate action to take after abandoning a vessel in a survival craft	1.0 hr	4.5 hrs
4) Rescue 1) Rescue 2) VHF portable Radios, including GMDSS radios 3) Pyrotechnics		0.75 hr
5) Concept and application of the fire triangle to fire and explosion 1) Conditions for fire – reminder 2) Properties of flammable materials – reminder	1 hr	
6) Selection of fire fighting appliances and equipment 1) Fireman's outfit 2) Life lines 3) Fire blankets 4) Breathing apparatus		7.25 hrs

5) Small fires 6) Extensive fires **Evaluation**	0.5 hr	Within the course hours
TOTAL	**3.5 hrs**	**12.5 hrs**
	16 hrs	

11.8 SYLLABUS

Legend for practical demonstrations	
*	This may also be achieved by using an approved propane gas-fuelled fire simulator.
*1	This is part of the skill-based assessment, therefore every candidate must be able to demonstrate their competency.
*2	Not a skill requirement but must be demonstrated by the instructor and/or at least one candidate, depending on the amount of equipment available.
*3	Knowledge may be covered using a video or an audio visual presentation

1) Introduction and safety **0.75 hr Lecture**

Instructors will:

1.1) give an introduction
- 1) learning objectives
- 2) course syllabus
- 3) who needs to follow this training course (for certification purposes, crewing purposes and to meet the new STCW-F Convention requirements)

1.2) present principles of safety
- 1) Always follow the instructor's safety
- 2) Follow all safety precautions when handling actual equipment such as pyrotechnics
- 3) Always be careful, even though the incidents are simulated

2) Hazards and emergencies **0.25 hr Lecture**

Instructors will:

2.1) review crew expertise
- 1) explain that the effectiveness of the life-saving equipment depends on the expertise of the crew
- 2) initial on-board familiarization, SOLAS and Canadian regulations, including review of chapter 4 of this TP

3) Lifesaving appliances and abandonment 1 hr Lecture & 4.5 hrs Practical

Instructors

3.1) describe and demonstrate lifejackets
1) proper way to put on a lifejacket and use attachments[*1]
2) proper way to put on a lifejacket and use attachments in total darkness[*1]
3) care and stowage[*2]
4) entering water from a height and swimming while wearing a lifejacket[*1]
5) inflation of inflatable lifejackets[*2]
6) proper use of a PFD[*2]

3.2) describe immersion suits

Demonstrate
1) proper way to put one on with necessary speed, and use attachments[*1]
2) proper way to put one on in darkness with necessary speed, and use attachments[*1]
3) entering water from a height and swimming while wearing an immersion suit[*1]
4) care and stowage[*2]

3.3) describe anti-exposure work suits

Demonstrate
1) proper way to put one on with necessary speed, and use attachments[*2]

3.4) describe thermal protective aids (TPA)

Demonstrate
1) proper use of TPA[*2]
2) proper way to put a TPA on an unconscious casualty [*2] & [*3]

3.5) describe lifebuoys and line throwing devices

Demonstrate
1) how to correctly use a lifebuoy (throwing, entering and securing in it while in the water and waiting for rescue)[*2]
2) how to correctly use a line throwing device[*2] as per policy in section 1.11
3) use of lifebuoys with self-igniting lights[*2]
4) mounting, proper procedure to use a self-activating smoke signal lifebuoy[*2] or [*3]

3.6) discuss personal survival
1) discuss how to keep afloat without a lifejacket, immersion suit and/or anti-exposure suit (without any aid)

Demonstrate
a) how to stay together in the water[*2]
b) Heat Escape Lessening Posture (HELP)[*1]
c) swim as a group in a chain[*1] & [*]
d) form a huddle in the water[*1] & [*]
e) how to use a rescue blanket[*2]

3.7) conduct lifeboat demonstrations
1) how to correctly get into a lifeboat from ship and from water[*1]
2) how to correctly secure yourself in it[*1]
3) how to correctly secure an injured crew member[*2]
4) how to correctly launch a lifeboat that is securely fasted under davits[*2] &[*]

5) how to correctly use all equipment[*2]
6) how to start and use the lifeboat engine[*2]
7) how to correctly care for and stow lifeboats[*2]
8) various scenarios of lifeboat drills[*], including at least one in cold climate (may simulate cold climate scenario)

3.8) conduct liferafts demonstrations - using equipment
1) how to correctly launch an inflatable liferaft[*2]
2) how to correctly board a liferaft from the water, while wearing a lifejacket [*1]
3) how to correctly board a liferaft from the water, while wearing a survival suit[*1]
4) how to use the various gear and equipment in the survival pack[*2]
5) how to right an inverted liferaft while wearing a lifejacket[*1]
6) how to manoeuvre a liferaft and set the anchor to reduce drift[*2]
7) how to retrieve a man overboard (MOB)[*1]
8) demonstrate installation, including best position of the hydrostatic release[*2]

3.9) describe rigid hull liferafts and equipment
1) demonstrate the basic features of this type of liferaft[*2] or [*3]
2) demonstrate the proper stowage and releasing mechanism[*2] or [*3]
3) explain the importance of following the manufacturers recommended maintenance guidelines
4) describe special care when launching in presence of ice

Demonstrate

a) how and when to correctly launch a rigid hull liferaft from the ship's deck[*2 or *3]
b) survival pack and how to use it[*2 or *3]
c) boarding a rigid hull liferaft from the water, with lifejacket and then with survival suits[*2 or *3]
d) manoeuvring the rigid hull liferaft and setting the anchor to reduce drift*[2 or *3]
e) how to retrieve a man overboard (MOB) [*2 or *3]
f) dewatering of a rigid hull liferaft[*2 or *3]
g) care and stowage[*2 or *3]

3.10) demonstrate action to take after abandoning a vessel in a survival craft[*2] or [*3]
1) after leaving the vessel in an inflatable or rigid hull liferaft
2) after leaving the vessel in winter and/or ice covered water
3) after leaving the vessel in very warm weather
4) after leaving the vessel if lifeboat engine does not start (how to use oars)
5) action to take when rescue is far away

4) Rescue 0.75 hr Practical

Instructors will:

4.1) demonstrate how to use rescue equipment
1) use of rescue slings[*1]
2) use of rescue basket[*3]
3) use of rescue net*[2]

4.2) describe VHF portable radios, including GMDSS radios
1) demonstrate proper use throughout the course[*1]

4.3) demonstrate how to use pyrotechnics
    1) main types[*2]

5) Concept and application of the fire triangle to fire and explosion 1 hr Lecture

Instructors will:

5.1) review the conditions for fires
1) list conditions required for fire to occur as:
a) the presence of material that acts as a fuel
b) a source of ignition, e.g. chemical, biological or physical
c) the presence of oxygen
2) sketch how these three conditions can be represented as a triangle (the fire triangle) – concepts to prevent and extinguish fires
3) sketch how adding a fourth condition creates the "chain reaction", "fire tetrahedron", which represents a continuously burning fire

5.2) review the properties of flammable materials
1) define:
a) flammability
b) ignition point
c) burning temperature
d) burning speed
e) thermal value
f) lower flammable limit (LFL)
g) upper flammable limit (UFL)
h) flammable range
i) flashpoint
j) auto-ignition
2) give one example of how static electricity can occur
3) explain reactivity
4) explain ignition sources

6) Selection of fire fighting appliances and equipment 7.25 hrs Practical

Instructors will:

6.1) describe fireman's outfit
1) demonstrate how to put on the complete gear in a timely manner[*1] (Note that this demonstration can be spread out during drills)

6.2) describe life lines
1) demonstrate how to use it[*2]
2) explain and demonstrate how to use the lifeline for signalling[*2] or [*3]

6.3) describe fire blankets
1) demonstrate how to use it[*2]

6.4) review and demonstrate how to use breathing apparatus
1) demonstrate the correct way to fit the face mask of a SCBA and to check that it is airtight[*1]
2) list the checks that must be made on a SCBA before each use and after it has been strapped on
3) demonstrate the correct breathing technique to give low air consumption for a particular exertion when using a SCBA[*1]

4) explain the reasons for not remaining in a toxic atmosphere until the SCBA air bottles are empty
5) explain that the pressure gauge is read at frequent intervals during use and action that must be taken when the warning signal is given on a SCBA that air pressure is low
6) demonstrate how to check and use the compressed air operated breathing apparatus[*2]
7) demonstrate entering a small room using SCBA when the room is filled with non-toxic artificial smoke, using a lifeline as a signal line and take part in team exercise demonstrating communication with other team members while wearing a SCBA[*2] &[*]
8) demonstrate how to search for persons (using dummies) in a smoke-filled space while wearing a SCBA[*1]
9) demonstrate rescuing missing crewmember (using dummies) during real fire fighting conditions, using various scenarios which include a passenger vessel[*1] &[*]

6.5) describe small fires
1) demonstrate the correct use of portable fire extinguishers suited, respectively, for the following types of fire[*, *2] or [*3]
    a) materials, e.g. wood
    b) oil
    c) grease
    d) plastics
    e) propane
    f) electrical
2) demonstrate the operational principle of each type of fire extinguishers found on board a cargo vessel[*2]
3) demonstrate how to extinguish small fires using a hose with water jet and spray nozzles and with foam applicator, out and in a smoke-filled space (mock-up)[*1] & [*]
4) demonstrate the use of various types of portable fire extinguishers on fires in a smoke-filled space while wearing a SCBA[*1] & [*]
5) demonstrate fire fighting techniques when dealing with a small fire, including a quick review of fire fighting techniques for mariners dealing with small fires, using various scenarios (which must include at least one in cold weather and one on a passenger vessel)[*1] & [*]

6.6) describe extensive fires
1) demonstrate the extinguishing of extensive fires of various types, including an oil fire, using as appropriate[*, *2] or [*3]
    a) water (jet, spray and fog application)
    b) foams, including aqueous-film-forming type (AFFF)
    c) powder, dry and wet
    d) CO_2
2) demonstrate the extinguishing of an extensive fire when wearing a SCBA in smoke-filled enclosed spaces (mock-up), including an accommodation room or simulated engine room, and using as appropriate water (jet, spray or fog), foam and powder[*1] & [*]
3) demonstrate a complete fire drill[*]
4) demonstrate fire fighting techniques when dealing with an extensive fire, including a quick review of fire fighting techniques for mariners dealing with extensive fires, using various scenarios (which must include at least one in cold weather and one on a passenger vessel)[*1] & [*]

11.9 EVALUATION

The evaluation consists of two parts:

1) 25 multiple-choice questions covering the complete knowledge and competency of the course. Passing mark to obtain the TCMSS training certificate is 70%.
2) practical assessment achieved during the course.
   The following legend indicates which competency is part of the skill-based assessment:

   *1 this is part of the skill-based assessment, therefore every candidate must be able to demonstrate their competency.

   *2 not a skill requirement but must be demonstrated by the instructor and/or at least one candidate, depending on the amount of equipment available.

   For drills noted with a *, every candidate must demonstrate during the course that he can act as a lead team member on at least one fire fighting drill and one survival drill.

12 PROFICIENCY IN SURVIVAL CRAFT AND RESCUE BOATS OTHER THAN FAST RESCUE BOATS (PSC)

12.1 GENERAL

This course meets the requirements of Table A-VI/2-1 of the STCW Convention *Specification of the minimum standard of competence in survival craft and rescue boats other than fast rescue boats*.

12.2 EQUIPMENT REQUIREMENTS

1) A SOLAS approved and equipped lifeboat that meets all the requirements of the LSA Code for cargo vessels. The lifeboat must be fitted under davits, allowing direct launching into the open water. The lifeboat release and retrieval system must comply with the new IMO resolution MSC 320 (89). **Note:** While the lifeboat does not need to be approved for use at sea, it must be a training model similar to those on SOLAS cargo vessels;
Or
equipment as mentioned under subsection 1.10 of section 1, with conditions as listed under subsection 3.4;

2) one approved rescue boat with equipment and engine (can be replaced by an approved lifeboat which meets the requirements of an approved rescue boat), sited so as to allow launching into the open water. The rescue boat and the release and retrieval system must meet the functional requirement stated in SOLAS and comply with the requirements of the LSA Code. **Note:** While the boat does not need to be approved for use at sea, it must be a training model of what is found on SOLAS cargo vessels;

3) two SOLAS approved inflatable liferafts (minimum 12 persons) with equipment that meets the LSA Code requirements for cargo vessels; one must be fitted with an approved davit while the other may be stowed in a float free stowage and be safely secured with a hydrostatic release. **Note:** While the davit does not need to be approved for use at sea, it must be a training model of what is found on SOLAS cargo vessels;

4) one SOLAS approved lifejacket for each participant including three inflatable lifejackets;

5) a variety of immersion suits suitable for 100% of the participants, including at least two SOLAS approved anti-exposure work suits. **Note:** Schools must introduce a policy in their quality management system stating that at registration they will advise candidates with special needs that they may need to bring their own gear.

6) two approved lifebuoys, one with a line and the other with an approved light and buoyant smoke signal;

7) one of each: rescue sling and rescue net;

8) one line throwing device that can be demonstrated at each course;

9) one lifeboat embarkation ladder;

10) one personal locator beacon (PLB);

11) one basket-type stretcher;

12) a variety of hand flares, parachute rockets and day smoke signals;

13) two portable 2-way radiotelephones approved for use in survival craft or a GMDSS Radio, or other radios that meet the functional equivalency;

14) one demonstration Class 1 EPIRB or a GPIRB (EPIRB equipped with GPS);

15) one demonstration search and rescue transponder (SART);

16) a life-size dummy;

17) a first aid kit;

18) a resuscitation kit with oxygen/suction unit;

19) paper or PDF copies for the candidates' review, of:

   a) TP 14335 – Winter Navigation on the River and Gulf of St. Lawrence,
   b) Ice Navigation in Canadian Waters, 2012 edition,
   c) relevant Transportation Safety Board (TSB) cases from previous accidents involving passenger-carrying vessels,
   d) International Life-Saving Appliance Code (LSA Code),
   e) IMO Guidelines for Evaluation and Replacement of Lifeboat Release and Retrieval systems, MSC.1/circ.1392,
   f) copy of the International Aeronautical and Maritime Search and Rescue Manual (IAMSAR, Vol. III),
   g) lifesaving plan of generic vessels and various examples of muster lists and station bills;

20) visual or audio-visual presentation on:

   a) various types of approved lifeboats (including free-fall lifeboats), rescue boats, fast rescue boats and liferafts (including rigid hull) that can be found on various types of vessels,

b) marine evacuation systems,
c) man overboard,
d) hypothermia, its effects and ways of overcoming it,
e) cold shock,
f) preparing for abandonment;

21) access to open water or to pool facilities suitable for teaching and demonstrating the use of the equipment. The facility must have a platform so candidates can demonstrate entering water from a height.

12.3 DURATION

A minimum of 30.5 hours

12.4 PRE-REQUISITE AND MINIMUM AGE

1) A person must be at least 16 years of age to take the PSC course.

2) Person must hold valid MED A1 or MED A2 or STCW Basic Safety training certificate.

12.5 INSTRUCTOR QUALIFICATIONS

1) Teachers and Instructors must be qualified in the tasks they teach and be appropriately trained in instructional techniques and training methods as set out in section A-I/6 of Part A of the 2010 STCW Code;

2) In the case of a specialized marine training course, the main course instructor, in addition to holding qualifications for teaching, must have received appropriate training and hold a valid TC instructor approval letter;

Note: If the course is under the supervision of more than one instructor, the assistant instructors must hold the qualifications required by subsection 1.6 of this TP.

12.6 GOALS

To enable course participants to learn about, understand and become proficient in:

1) construction and outfit of survival craft and rescue boats and individual items of their equipment;
2) particular characteristics and facilities of survival craft and rescue boats;
3) various types of devices used to launch survival craft and rescue boats;
4) methods of launching survival craft into a rough sea;
5) methods of recovering survival craft;
6) actions to take after leaving the ship;
7) methods of launching and recovering rescue boats in a rough sea;
8) handling survival craft in rough weather;
9) how to use painter, sea anchor and all other equipment;
10) how to apportion food and water in survival craft;
11) action to take to maximize detectability and location of survival craft;
12) method of helicopter rescue;
13) effects of hypothermia and its prevention, use of protective covers and garments,

including immersion suits and thermal protective aids;
14) use of rescue boats and motor lifeboats for marshalling liferafts and rescue of survivors and persons in the sea;
15) beaching survival craft;
16) methods of starting and operating a survival craft engine and its accessories together with how to use the fire extinguisher provided;
17) radio lifesaving appliances carried in survival craft, including satellite EPIRBs and SARTs;
18) pyrotechnic distress signals;
19) how to use first-aid and resuscitation techniques;
20) managing injured persons, including how to control bleeding and shock.

12.7 OUTLINE

SUBJECT AREA	HOURS		
	LECTURE	PRACTICAL	SIMULATION
1) Introduction and safety 1) Introduction 2) Principles of safety 3) Overview of various documents	0.75 hr		
2) General 1) Signals and alarms 2) Emergency duties lists (Muster lists) 3) Crew expertise, drills, training and operational readiness 4) Emergency situations 5) Actions to be taken when called to survival craft stations	1.25 hrs	0.25 hr	
3) Abandon ship 1) Actions to be taken when required to abandon ship 2) Actions to be taken when in the water	0.5 hr		
4) Lifeboats 1) General 2) Lifeboat davits 3) Launching and handling of lifeboats 4) Launching lifeboats in rough sea 5) Clearing the ship's side 6) Recovery of lifeboat during drills 7) Free-fall lifeboat davits 8) Lifeboat engine and accessories 9) Lifeboat water spray system 10) Lifeboat self-contained air support system 11) Various scenarios of lifeboat drills, which include drills in launching and recovering boats*	2.5 hrs	4.5 hrs or 2.25 hrs	- or 2.25 hrs

5) Rescue boats 1) General 2) Rescue boats davits 3) Rescue boat outboard engines 4) Launching of rescue boats 5) Launching rescue boats in rough sea 6) Recovery of rescue boats 7) Marshalling and towing of liferafts and rescuing survivors from the sea 8) Various scenarios of rescue boat drills, which include drills in launching and recovering boats*	2.5 hrs	5 hrs or 2.5 hrs	- or 2.5 hrs
6) Liferafts, rigid hull liferafts and marine evacuation systems 1) Liferafts 2) Liferafts – handling in rough weather 3) Float-free arrangements 4) Rigid hull liferafts and equipment 5) Marine Evacuation Systems	2 hrs	4 hrs	
7) Survival, first aid and rescue 1) Initial actions 2) Actions to increase chances of survival and rescue 3) Apportionment of food and water 4) First aid 5) Emergency position-indicating radio beacons (EPIRB) 6) Search and rescue transponders (SART) 7) Personal locator beacons (PLB) 8) Recognition and operation of signalling devices 9) GMDSS portable radios 10) Pyrotechnics 11) Line throwing devices 12) Rescue equipment	2.5 hrs	2.75 hrs	
8) Helicopter assistance 1) Communicating with the helicopter 2) Evacuation from ship and survival craft 3) Helicopter pick-up*2 or *3 4) Correct use of helicopter harness*3	0.5 hr	0.5 hr	
9) Search and rescue (IAMSAR) 1) Discuss and demonstrate contents of the IAMSAR Manual 2) Discuss the Canadian Search and Rescue center 3) Give an overview on how a search and	0.5 hr		

rescue mission would be done **10) Evaluation**	0.5 hr	Within the course hours	
TOTAL	**13.5 hrs**	**17 hrs or 12.25 hrs**	**- or 4.75 hrs**
	30.5 hrs		

12.8 SYLLABUS

Legend for practical demonstrations	
*1	This is part of the skill-based assessment, therefore every candidate must be able to demonstrate their competency.
*1a	This is part of the skill based assessment. If simulator training conforming to section 3.4 is used in the course, every candidate must be able to demonstrate their competency using the simulator.
*2	Not a skill requirement but must be demonstrated by the instructor and/or at least one candidate, depending on the amount of equipment available.
*2a	Not a skill requirement. If simulator training conforming to section 3.4 is used in the course, the demonstration may be conducted using the simulator.
*3	Knowledge may be covered using a video or an audio visual presentation

1) Introduction and Safety **0.75 hr Lecture**

Instructors will:

1.1) give an introduction
1) learning objectives
2) course syllabus
3) who needs to follow this training course (for certification purposes, crewing purposes and to meet the new STCW-F Convention requirements)

1.2) present principles of safety
1) Always follow instructor safety rules .
2) Follow all safety precautions when handling actual equipment, such as pyrotechnics.
3) Always be careful, even though the incidents are simulated.

1.3) give an OVERVIEW of various documents, codes, regulations and standards are available for review (LSA Code, SOLAS, *Marine Personnel Regulations*, TP 14335, etc.).

2) General **1.25 hrs Lecture & 0.25 hr Practical**

Instructors will:

2.1) describe and demonstrate signals and alarms
1) demonstrate emergency alarm signal*3
2) demonstrate other alarm signals*3
3) state emergency messages may also be made on public address system fitted in passenger and crew spaces and to muster stations

4) who is responsible for the call to abandon vessel

2.2) explain emergency duties lists (Muster lists)
1) when a muster list is required, and what to use on board if it is not required on your vessel
2) where the list is placed on the vessel
3) what information must be on the muster list, or emergency duty list for ships that do not require an official muster list
4) list the duties assigned to members of the crew in relation to passengers
5) state that the person in charge of a survival craft, rescue boat or marine evacuation system must have a list of its crew
6) state that it is that person's duty to see that the crew know their duties
7) state that the second in command should also have a list of the crew
8) state that the muster list specifies substitutes for key persons who may become disabled
9) recognize the symbols relating to life-saving appliances and arrangements

2.3) discuss crew expertise, drills, training and operational readiness
1) explain that the effectiveness of the life-saving equipment depends on the expertise of the crew
2) initial on-board familiarization, SOLAS and Canadian regulations, including a review of chapter 4 of this TP
3) explain the purpose and importance of regular drills and training
4) explain the need to be ready for an emergency
5) discuss frequency of drills
6) state that there is need to be familiar with all of the ship's life-saving appliances
7) state the provision and contents of a training manual and on-board training aids
8) explain the requirement for operational readiness, maintenance and inspection

2.4) describe emergency situations
1) list emergencies which may lead to abandoning ship as:
    a) fire
    b) collision
    c) stranding
    d) explosion
    e) adverse reaction of dangerous goods or hazardous bulk cargo
    f) shifting of cargo
    g) foundering
2) list the particular difficulties of abandonment crew and passengers may face in the different emergencies.
3) state that in the case of fire it may be prudent to immediately launch some or all survival craft to stand by while fire fighting continues
4) list the emergencies that may require launching and using rescue boats as:
    a) abandon ship, including marshalling of survival craft
    b) man overboard
    c) towing and rescue of survival craft from a shipwreck

2.5) present actions to take when called to survival craft stations
1) list the personal life-saving appliances as:
    a) lifejackets
    b) lifebuoys
    c) immersion suits
    d) thermal protective aids
    e) anti-exposure suits

2) describe personal preparation for abandoning ship

3) state that the person in command of each survival craft should check that all crew are present and that crew and passengers are suitably dressed and have correctly put on their lifejackets
4) describe the preparations for launching survival craft and using marine evacuation systems
5) explain that boats should only be lowered to embarkation deck level on instruction from the master
6) explain that marine evacuation systems should only be used on instruction from the master
7) state that persons assigned in the muster list should take two-way VHF radiotelephone apparatus, EPIRBs, SARTs and other items to their station

3) Abandon Ship **0.5 hr Lecture**

Instructors will:

3.1) present actions take when required to abandon ship
1) state that a ship should only be abandoned on the orders of the master or person in charge of the ship
2) list additional items you may put into a lifeboat when time permits
3) describe the supervision of boarding lifeboats and rescue boats
4) describe the supervision of boarding liferafts through marine evacuation systems
5) describe the supervision of boarding davit-launched liferafts
6) describe how to board hand-launched liferafts from the ship
7) explain the dangers of jumping onto inflatable liferafts
8) explain why people should make every effort to keep dry when boarding survival craft
9) state that the person in charge should ensure that all of the boat's crew is present and all occupants are seated, with safety belts fastened where appropriate, before lowering
10) state that someone should check that hands and arms are clear of the boat's sides
11) state that it is important to start inboard engines of lifeboats and rescue before reaching water.
12) state that it is important to **never** start an outboard motor out of the water
13) state that it is important to set water spray and air support systems to operate and check that hatches are closed if launching into oil on the surface
14) state that it is important to check that it is clear below before lowering a boat, throwing a raft overboard, or deploying a marine evacuation system
15) explain what the person in charge should do if it proves impossible to launch a survival craft or use a marine evacuation system
16) explain the importance of having a Plan B: second escape route

3.2) present actions to take when in the water
1) state that a person should never enter the water without a lifejacket
2) state that a person should wear an immersion suit or anti-exposure suit if available
3) explain that anything buoyant will help a survivor in the water
4) explain that a person in the water will cool and suffer from exposure very quickly, even in warm temperate areas, unless wearing an immersion suit, thermal protective aid or anti-exposure suit
5) explain that survivors in the water should swim to survival craft, buoyant wreckage or one another if within range, but otherwise avoid unnecessary exertion
6) describe the lifejacket light and whistle as aids to rescue
7) explain how to hold on to a boat or raft

4) Lifeboats **2.5 hrs Lecture & 4.5 hrs Practical**
(2.25 hrs Practical & 2.25 hrs Simulation if simulator is used)

Instructors will:

4.1) provide general background
1) identify different types of SOLAS lifeboats, demonstrating their various construction and outfit particularities[*3]:
    a) partially enclosed
    b) totally enclosed
    c) fire-protected as required on gas, chemical and oil tankers
    d) free-fall
2) number and type of requirements on board, as per SOLAS and Canadian regulations, depending on type of vessel
3) interpret the markings on a lifeboat as to the number of persons it is permitted to carry
4) explain the importance of a checklist for pre-boarding a lifeboat
5) list the normal equipment found in a lifeboat
6) describe the precautions to take during winter or in presence of ice
7) state the importance of following manufacturer's recommended maintenance guidelines

4.2) discuss lifeboat davits
1) describe the arrangements for stowage, securing, gripes, tracing pendants and ways to launch and recover boats with:
    a) gravity davits
    b) single-arm davits
2) describe ways to disengage lifting hooks[*2a]
3) outline on-board maintenance of davits, falls and disengaging gear
4) describe the limitation and danger of the on-load release
5) state the importance of following manufacturer's recommended maintenance guidelines

4.3) discuss launching and handling lifeboats
1) state the importance of seeing that it is clear below before lowering survival craft
2) explain how to set up boat painters before launching
3) describe how to use bowsing-in tackles
4) explain how to browse in the falls to reduce swinging while the boat is lowered
5) describe lowering the boat from the deck and from inside the boat[*2a]
6) describe how to unhook falls or operate disengaging gear[*2a]
7) distinguish between normal release and on-load release and explain when to use each[*2a]
8) explain the difficulties that could arise if the ship is still making headway
9) describe how to launch davit-launched liferafts
10) explain that the bowsing lines and painter must be passed into the liferafts before lowering, to ensure that they do not snag on anything
11) describe the danger of the break release control
12) state when to release the safety-catch on the hook
13) explain how to lower lifeboats when the ship is listed
14) explain how to lower lifeboats when in presence of ice[*2a]

4.4) explain and demonstrate launching lifeboats in rough sea
1) explain how to reduce the risk of danger to survival craft or injury to occupants during lowering if the ship is rolling heavily
2) explain how to lower a boat into a heavy swell[*1a]

3) describe how to lift blocks as soon as unhooked to prevent injury to occupants
4) explain how to use on-load release systems[*1a]
5) demonstrate how to get clear from ship's side[*3/*1a]
6) explain how to manoeuvre the lifeboat in rough sea[/*1a]

4.5) describe clearing the ship's side
1) describe how to get clear of the ship's side in a lifeboat:
    a) using the engine[*2a]
    b) using oars
2) describe how to use the painter to help clear the ship's side[*2a]
3) explain the particular difficulty of getting away from the lee side of a ship

4.6) describe lifeboat recovery during drills
1) explain how to handle a boat under power while coming alongside a ship or quay[/*1a]
2) explain how to use the painter to help keep a lifeboat alongside[/*1a]
3) state that the coxswain should be the last person to leave the lifeboat and it is his or her responsibility to check that the boat is secure

4.7) describe free-fall lifeboat davits
1) describe the arrangements for free-fall
2) describe launching sequences
3) explain the secondary means of launching and recovering the boats
4) explain the importance of a good sitting position when launching the free-fall boat to avoid whiplash
5) demonstrate free-fall launching[*2/*2a] or[*3]
6) explain key points when recovering a free-fall lifeboat after a drill and demonstrate[*2/*2a] or [*3]
7) state the importance of following manufacturer's recommended maintenance guidelines

4.8) explain lifeboat engine and accessories
1) explain how to start a lifeboat engine[*2a]
2) explain the importance of following safety checklist[*2a]
3) describe manufacturer's instructions and control settings
4) explain how to operate ahead and astern propulsion[*2a]
5) explain how to stop engine[*2a]
6) explain how to clean the fuel tank and renew fuel filters
7) state the quantity of fuel a lifeboat needs and when it needs to be changed
8) explain the importance of battery condition and/or hand cranking system
9) describe winterization
10) describe the following cooling systems:
    a) air
    b) fresh-water
    c) seawater
11) explain why fresh-water cooling systems need protection with antifreeze when operating in cold areas
12) state that the engine should be capable of running with the lifeboat out of the water for at least 5 minutes
13) describe arrangements for charging batteries from the ship's power supplies
14) describe how to extinguish a fuel fire with the extinguisher provided in the boat

4.9) describe lifeboat water spray system
1) state that fire-protected lifeboats are fitted with a water spray system you can turn on or off

2) explain that the spray is driven by a self-priming pump that starts as soon as the boat enters the water
3) explain what to do if it does not start
4) state that the system should be flushed with fresh water and completely drained after drills
5) describe winterization
6) demonstrate when in use[*3/*2a]

4.10) describe lifeboat self-contained air support system
1) explain that all entrances and openings should be closed when using the self-contained air-support system[*2a]
2) state that the system will keep the air breathable and allow the engine to run normally for at least 10 minutes

4.11) present various scenarios of lifeboat drills that include launching and recovering boats and at least one in cold climate[*] (may simulate cold climate scenario)
1) how to act as an efficient member of a launching/recovering crew[*1//*1a]
2) enter lifeboat from ship[*1]
3) enter lifeboat from the water[*1]
4) how to correctly secure yourself in a lifeboat[*1]
5) how to bring an injured or exhausted survivor on board a lifeboat[*2]
6) how to correctly secure an injured crew member in a lifeboat [*2]
7) how to correctly launch a lifeboat that is securely fasted under davits and clear the ship's side quickly [*2//*1a] & [*]
8) start and operate an inboard engine fitted in a enclosed lifeboat[*2//*1a]
9) steer a boat by compass[*2//*1a]
10) how to act as coxswain in handling a boat under power[*1//*1a]
11) how to stream a sea anchor[*2/*2a]
12) how to correctly use all equipment[*2]
13) how to properly care for and stow a lifeboat [*2]
14) safely recover the boats[*2//*1a]
15) how to properly beach a lifeboat[*2] or [*3]

5) Rescue boats **2.5 hrs Lecture & 5 hrs Practical**
(2.5 hrs Practical & 2.5 hrs Simulation if simulator is used)

Instructors will:

5.1) provide general background
1) describe and demonstrate[*3] the construction and outfit of the following rescue boats:
   a) rigid boats
   b) inflatable boats
   c) combined of rigid / inflatable boats
2) outline the purpose of rescue boats and the requirements for their carriage on board ships as per SOLAS and Canadian regulations, depending on type of vessel
3) describe the particular characteristics and facilities of rescue boats
4) state that arrangements for towing are permanently fitted in rescue boats
5) interpret the markings on a rescue boat as to the number of persons it is permitted to carry
6) state that inflatable rescue boats must always be kept in a fully inflated condition
7) explain the importance of a checklist for pre-boarding of a rescue boat
8) list the normal equipment found in a rescue boat

9) describe the precautions to take during winter or in presence of ice
10) explain the importance of following manufacturer's recommended maintenance guidelines

5.2) describe rescue boats davits
1) describe the arrangements for stowage, securing, gripes, tracing pendants and how to launch and recover rescue boats fitted under various types of approved davits
2) describe ways to disengage lifting hooks[*2a]
3) state that rescue boat's launching appliance must be fitted with a powered winch motor capable of raising the rescue boat from the water with its full complement of persons and equipment
4) state that means of launching from a position within the rescue boat is provided
5) explain the importance of following manufacturer's recommended maintenance guidelines

5.3) describe rescue boat outboard engines
1) describe the rescue boat's outboard engines, with special emphasis on:
a) securing arrangements, normal position during operation and titled position when stowed
b) arrangements of fuel tank, connections and priming
c) cooling system
d) use of choke
e) starting, throttle and stopping the engine
f) changing the gear
2) list the prestart checks
3) explain how to start a cold outboard motor engine
4) state that it is important to always follow the manufacturer's specification for petrol/oil mixture to avoid damage to the engine
5) list the checks to make when:
a) the engine does not start
b) engine power is reduced
c) the engine is running
6) state that starting an outboard motor out of water will quickly heat the engine and the engine will seize
7) state to never lay outboard engines horizontally when transporting or stowing, as cooling water may drain into the engine
8) demonstrate the emergency stop device and how to use it
9) describe the onboard maintenance of outboard motor engines
10) describe winterization

5.4) explain how to launch rescue boats
1) describe how to properly lower a rescue boat
2) describe the danger related to launching rescue boats
3) describe the hook system
4) describe the on/off load release mechanism
5) explain how to lower a rescue boat when in presence of ice[*2a]

5.5) explain how to launch rescue boats in rough sea
1) explain how to reduce the risk of danger to rescue boats or injury to occupants during lowering if the ship is rolling heavily
2) explain how to lower a boat into a heavy swell
3) explain how to use on-load release systems
4) describe how to get clear from ship's side

5.6) explain how to recover rescue boats
1) explain how to handle a boat under power while coming alongside a ship or quay
2) explain how to use the painter to help keep rescue boats alongside

3) state that the coxswain should be the last person to leave the rescue boat and it is his or her responsibility to check that the boat is secure
4) describe how to recover rescue boats in rough sea

5.7) explain how to marshal and tow liferafts and rescue survivors from the sea
1) explain that rescue boats should be used to marshal liferafts clear and pick up survivors and persons in the sea
2) explain how to tow a liferaft
3) describe how to pick up a survivor from the water
4) describe briefly different search patterns
5) state that anyone entering the water to help a survivor must have a line attached

5.8) conduct various scenarios of rescue boat drills, which includes drills in launching and recovering boats*
1) how to act as an efficient member of a launching/recovery crew*1//*1a &*
2) how to correctly launch a rescue boat and clear the ship's side quickly *2/*2a & *
3) how to correctly use all equipment*2
4) how to properly care for and stow a rescue boat *2
5) how to steer the rescue boat by compass*2//*1a
6) how to act as coxswain in handling rescue boats*1//*1a
7) how to pick up a survivor from the water*1//*1a
8) how to correctly get back on board, in full survival gear*1
9) how to correctly secure an injured crew member*2
10) how to safely bring the rescue boat alongside*2//*1a
11) how to safely recover the rescue boat*1//*1a
12) how to safely transfer passenger/survivor*2
13) how to marshal liferafts*2/*2a
14) how to tow liferafts*2/*2a
15) how to properly beach rescue boats*2 or *3

6) Liferafts, rigid hull liferafts and marine evacuation systems 2 hrs Lecture & 4 hrs Practical

Instructors will:

6.1) discuss liferafts
1) demonstrate the basic types and features of liferafts*2 or *3
2) demonstrate proper stowage and how to use releasing mechanism*2 or *3
3) explain requirements as per SOLAS and Canadian regulations depending on the type of vessel
4) demonstrate how to interpret the markings on a liferaft as to the number of persons it is permitted to carry*2 or *3
5) describe the differences between various survival packs and gear
6) describe and demonstrate the liferaft launching davits*2
7) explain and demonstrate how to use the automatic release hook*2
8) describe how to recover the hook for launching another liferaft
9) explain the importance of following manufacturer's recommended maintenance guidelines
10) describe special care in cold climate

Demonstrate

a) how to correctly put on a lifejacket/immersion suit without assistance, within 1 minute*1
b) how to correctly put on a lifejacket/immersion suit without assistance, in total darkness*1

c) how to jump in the water from a height while wearing a lifejacket/immersion suit[*1]
d) how to use the whistle attached to a lifejacket/immersion suit[*1]
e) the heat-escape-lessening posture (HELP)[*1]
f) how to correctly launch an inflatable liferaft[*2]
g) how to correctly launch a davit-launched liferaft[*2]
h) how to board a liferaft from the water, while wearing a lifejacket [*1]
i) how to board a liferaft from the water, while wearing a survival suit[*1]
j) how to use the various gear and equipment in the survival pack[*2]
k) how to right an inverted liferaft while wearing a lifejacket[*1]
l) how to manoeuvre a liferaft and set the anchor to reduce drift[*2]
m) how to retrieve a man overboard[*1]
n) how to throw the rescue quoit and line to a person in the water[*2]
o) how to care for and stow liferafts[*2]

6.2) discuss how to handle liferafts in rough weather
1) explain that strong winds make it very difficult to get clear of the lee side of a ship
2) explain how to position survivors to minimize the danger of capsizing when lying to a sea anchor
3) explain the precautions to take when lashing a liferaft to other survival craft in rough weather
4) explain that launching position may be different from original location on board
5) explain how to beach safely

6.3) explain and demonstrate float-free arrangements
1) explain the sequence of events leading to releasing the fully inflated liferaft in the case of a ship sinking
2) demonstrate characteristics and operation of the hydrostatic release units, including limitation and expiry[*2] or [*3]
3) demonstrate installation, including best position of the hydrostatic release[*2]

6.4) describe and demonstrate rigid hull liferafts and equipment
1) demonstrate the basic features of this type of liferafts[*2] or [*3]
2) demonstrate how to board a rigid hull liferaft from the water, with lifejacket and then with survival suit[*2] or [*3]

6.5) describe marine evacuation systems
1) describe the construction and performance of marine evacuation systems
2) state the requirements of liferafts used with marine evacuation systems
3) describe marine evacuation system containers
4) interpret the markings on marine evacuation systems as to the capacity of the system
5) explain the importance of following manufacturer's recommended maintenance guidelines
6) describe special care when launching in presence of ice
7) demonstrate main type of marine evacuation systems[*3]

7) Survival, first aid and rescue 2.5 hrs Lecture & 2.75 hrs Practical

Instructors will:

7.1) Present initial actions
1) state the importance of taking survivors in water on board
2) state the importance of giving all persons on board anti-seasickness tablets
3) describe how to secure survival craft together with the painter
4) explain how to use f sea anchors

5) list immediate actions as:
    a) stream the sea anchor
    b) set an EPRIB to function
    c) give everyone anti-seasickness pills
    d) bail the craft dry
    e) treat the injured
    f) inflate the liferaft floor in cold conditions
    g) get radio equipment ready
    h) post lookouts
6) explain the need to ventilate a liferaft after it has been inflated before closing the openings
7) state that liferafts carry instructions on how to survive in liferafts

7.2) Present actions that increase chances of survival and rescue
1) explain that organizing survivors to undertake tasks for their safety and comfort helps to maintain morale
2) explain the role of the lockout
3) list the main dangers to survivors
4) explain and demonstrate hypothermia, prevention, recognition and treatment *3
5) stay near spot where vessel went down; stream the sea anchor
6) review IMO MSC.1/Circ.1185/Rev 1(or latest version) on survival in cold water

7.3) Explain how to apportion food and water
1) state the quantities of food and water carried in a:
    a) lifeboat
    b) liferaft
2) explain how to ration and issue water and emergency food
3) explain the dangers of drinking seawater
4) describe how to collect rain water and how to store it
5) explain why eating fish or foods other than the survival craft rations increases dehydration
6) explain how to minimize dehydration in hot conditions
7) explain why you need potable water in winter conditions

7.4) discuss first aid
1) explain the need to give first aid to injured, giving priority to resuscitation
2) demonstrate on a life-size dummy how to apply mouth-to-mouth or mouth-to-nose respiration*2
3) describe the signs of cardiac arrest*2
4) demonstrate closed-chest cardiac compression on the dummy*2
5) demonstrate how two people combine cardiac compression and mouth-to-mouth respiration*2
6) demonstrate the recovery position for an unconscious person*2
7) demonstrate how to use the resuscitation kit with oxygen/suction unit*2 or *3
8) demonstrate the contents of the first-aid kit*2
9) describe how to deal with the following on board a survival craft:
    a) bleeding
    b) fractures
    c) burns
    d) shock
    e) frostbite
    f) heat stroke
10) demonstrate how to correctly prepare a casualty in basket-type stretcher, ready for evacuation*2

7.5) explain emergency position-indicating radio beacons (EPIRB)

1) classes of EPIRB, including new GPIRB
2) operation and limitation of EPIRBs and GPIRBs
3) demonstrate how they work[*2] or [*3]

7.6) describe and demonstrate search and rescue transponders (SART)
1) use and function
2) limitations
3) how it works[*2] or [*3]

7.7) explain and demonstrate personal locator beacons (PLB)
1) use and function
2) limitations
3) how it works[*2] or [*3]

7.8) explain how to recognize and operate signalling devices
1) signalling flashlight
2) daylight signalling mirror (heliograph)

7.9) explain GMDSS portable radios
1) use and limitations
2) requirements as per SOLAS and Canadian regulations
3) demonstrate throughout drills, proper communication using a VHF[*1]

7.10) explain and demonstrate pyrotechnics
1) classes of flares, their characteristics and use
2) circumstance in which to use each
3) care and safe stowage
4) demonstrate main types[*2]

7.11) explain and demonstrate line throwing devices
1) number required on a vessel
2) how to correctly use a line throwing device[*2] (include a live demonstration as per policy in section 1.11)
3) care and safe stowage[*2]

7.12) describe and demonstrate rescue equipment
how to use:
1) rescue sling[*1]
2) rescue basket[*3]
3) rescue net[*2]

8) Helicopter assistance **0.5 hr Lecture & 0.5 hr Practical**

Instructors will:

8.1) describe communicating with the helicopter
1) demonstrate signals used[*2/*2a]
2) explain how to communicate with the helicopter through a shore station if the appropriate equipment is available[*2a]

8.2) describe evacuation from ship and survival craft
1) why a ship needs a pick-up space that is clear of masts, rigging and other impediments
2) how to evacuate from lifeboats and liferafts

8.3) describe and demonstrate helicopter pick-up[*2] or [*3]

1) methods of pick-up by harness, stretcher and rescue net
2) hand and arm signals used for safe lifting
3) how the helicopter crew assists in pick-up
4) the importance of obeying the helicopter pilot's instructions

8.4) describe and demonstrate correct use of helicopter harness[*3]
1) how to put it on
2) how to adopt a safe posture in it

9) Search and rescue (IAMSAR) 0.5 hr Lecture

Instructors will:

9.1) discuss and demonstrate contents of the International Aeronautical and Maritime Search and Rescue (IAMSAR, VOL. III) Manual

9.2) discuss the Canadian Search and Rescue center, including duties of the:
1) Rescue Coordination Centre (RCC)
2) On-scene commander (OSC)

9.3) give an overview on how a search and rescue mission would be done:
1) in Canada
2) anywhere else

12.9 EVALUATION

The evaluation has two parts:

1) 25 multiple-choice questions covering the complete knowledge and competency of the course. Passing mark to obtain the TCMSS training certificate is 70%.

2) practical assessment achieved during the course.
The following legend indicates which competency is part of the skill-based assessment:

[*1] this is part of the skill-based assessment, therefore every candidate must be able to demonstrate their competency.

[*2] not a skill requirement but must be demonstrated by the instructor and/or at least one candidate, depending on the amount of equipment available.

[a] A numeral followed by the letter "a" indicates that simulation conforming to the requirements in section 3.4 may be used for skills-based assessment.

For drills noted with a [*] , every candidate must demonstrate during the course that he can act as a lead team member on at least one drill involving lifeboats or liferafts and one drill involving a rescue boat.

13 REFRESHER TRAINING COURSE IN PROFICIENCY IN SURVIVAL CRAFT AND RESCUE BOATS OTHER THAN FAST RESCUE BOATS (REF-PSC)

13.1 GENERAL

1) this course meets the requirements of Chapter VI, Section A-VI/2, paragraph 5 of the STCW Convention, including 2010 Manila Amendments.

2) Seafarers qualified in survival craft and rescue boats other than fast rescue boats in accordance with Chapter VI, Section A-VI/2, paragraph 4 of the STCW Convention must, every five years provide evidence of having maintained the required standard of competence to undertake the tasks, duties and responsibilities listed in column 1 of table A-VI/2-1 of the Convention.

13.2 EQUIPMENT REQUIREMENTS

1) a SOLAS approved and equipped lifeboat that meets all LSA Code requirements for cargo vessels. The lifeboat must be fitted under davits, allowing direct launching into the open water. The lifeboat release and retrieval system must comply with the new IMO resolution MSC 320 (89).

   Note: The lifeboat does not have to be approved for use at sea, but it must be a training model similar to those found on SOLAS cargo vessels;

   Or
   equipment as mentioned under subsection 1.10 of section 1, with conditions as listed under subsection 3.4;

2) one approved rescue boat with equipment and engine (can be replaced by an approved lifeboat which meets the requirements of an approved rescue boat), sited to allow launching into the open water. The rescue boat and the release and retrieval system must meet the functional requirement stated in SOLAS and meet LSA Code requirements.

   Note: The boat does not have to be approved for use at sea, but must be a training model of those found on SOLAS cargo vessels;

3) two SOLAS approved inflatable liferafts (minimum 12 persons) with equipment that meet the LSA Code requirements for cargo vessels, one to be fitted with an approved davit while the other may be stowed in a float free stowage and be safely secured with a hydrostatic release.

   Note: The davit does not have to be approved for use at sea, but must be a training model of those found on SOLAS cargo vessels;

4) one SOLAS approved lifejacket for each participant, including three inflatable lifejackets; a variety of immersion suits suitable for 100% of the participants, including at least two SOLAS approved anti-exposure work suits.

Note: Schools must introduce a policy in their quality management system stating that at registration they will advise candidates with special needs that they may need to bring their own gear;

5) two approved lifebuoys, one with a line and the other with an approved light and buoyant smoke signal;

6) one of each: rescue sling and rescue net;

7) one line throwing device that can be used each course;

8) one lifeboat embarkation ladder;

9) one personal locator beacon (PLB);

10) one basket-type stretcher;

11) a variety of hand flares, parachute rockets and day smoke signals;

12) two portable 2-way radiotelephones approved for use in survival craft or a GMDSS Radio, or other radios that meet the functional equivalency;

13) one demonstration Class 1 EPIRB or a GPIRB (EPIRB equipped with GPS);

14) one demonstration search and rescue transponder (SART);

15) a life-size dummy;

16) a first aid kit;

17) a resuscitation kit with oxygen/suction unit;

18) paper or PDF copies for the candidates to review, of:

   a) TP 14335 – Winter Navigation on the River and Gulf of St. Lawrence,

   b) Ice Navigation in Canadian Waters, 2012 edition,

   c) relevant cases of the Transportation Safety Board (TSB) from previous accidents involving passenger-carrying vessels,

   d) International Life-Saving Appliance Code (LSA Code),

   e) IMO Guidelines for Evaluation and Replacement of Lifeboat Release and Retrieval systems, MSC.1/circ.1392,

   f) copy of the International Aeronautical and Maritime Search and Rescue Manual (IAMSAR, Vol. III),

   g) lifesaving plan of generic vessels and various examples of muster lists and station bills;

19) visual or audio-visual presentation on:

a) various types of approved lifeboats (including free-fall lifeboats), rescue boats, fast rescue boats and liferafts (including rigid hull) that can be found on various types of vessels,

b) marine evacuation systems,

c) man overboard,

d) hypothermia, its effects and ways of overcoming it,

e) cold shock,

f) preparing for abandonment;

20) access to open water or to pool facilities suitable for teaching and demonstrating how to use the equipment. The facility must have a platform so candidates can demonstrate entering water from a height.

13.3 DURATION

A minimum of 13 hours

13.4 PRE-REQUESITE AND MINIMUM AGE

1) a person must be at least 16 years of age to take the REF-PSC course.

2) a person must hold a training certificate in Proficiency in Survival Craft and Rescue Boats other than Fast Rescue Boats (PSC) or equivalent under subsection 2.2 of chapter 2 of this TP to take this course.

13.5 INSTRUCTOR QUALIFICATIONS

1) Teachers and Instructors must be qualified in the tasks they teach and be appropriately trained in instructional techniques and training methods as set out in section A-I/6 of Part A of the 2010 STCW Code;

2) In the case of a specialized marine training course, the main course instructor, in addition to holding qualifications for teaching, must have received appropriate training and hold a valid TC instructor approval letter.

Note: If the course is under the supervision of more than one instructor, the assistant instructors must hold the qualifications required by subsection 1.6 of this TP.

13.6 GOALS

This refresher training course is designed to comply with the regulations and to refresh the seafarers' skills in basic emergency duties through demonstrations and practical drills and exercises.

13.7 OUTLINE

SUBJECT AREA	HOURS		
	LECTURE	PRACTICAL	SIMULATION
1) Introduction and safety 1) Introduction 2) Principles of safety 3) Overview of various documents.	0.75 hr		
2) General 1) Crew expertise – reminder	0.25 hr		
3) Lifeboats 1) General 2) Free-fall lifeboat davits 3) Various scenarios of lifeboat drills, which include drills in launching and recovering boats*	0.5 hr or 0.25 hrs	2.5 hrs or 0.5 hrs	- or 2.25 hrs
4) Rescue boats 1) General – reminder 2) Various scenarios of rescue boat drills, which include drills in launching and recovering boats*	0.5 hr or 0.25 hrs	2.5 hrs or 0.5 hrs	- or 2.25 hrs
5) Liferafts, rigid hull liferafts and marine evacuation systems 1) Liferafts 2) Liferaft handling in rough weather – reminder 3) Float-free arrangements 4) Rigid hull liferafts and equipment 5) Marine evacuation systems	0.5 hr	2 hrs	
6) Survival, first aid and rescue 1) Initial actions – reminder 2) Actions to increase chances of survival and rescue 3) Fist aid – reminder 4) Personal locator beacon (PLB) – reminder 5) Recognition and operation of signalling devices reminder 6) GMDSS portable radios – reminder 7) Pyrotechnics 8) Line throwing devices 9) Rescue equipment	0.5 hr	2 hrs	
7) Helicopter assistance 1) Communicating with the helicopter 2) Helicopter pick-up*2 or *3	0.25 hr	0.25hr	

8) Evaluation	0.5 hr	Within the course hours	Within the course hours
TOTAL	**4.00 hrs or 3.50 hrs**	**9.00 hrs or 5.00 hrs**	**0 hrs or 4.50 hrs**
	13 hrs		

13.8 SYLLABUS

Legend for practical demonstrations	
*1	This is part of the skill-based assessment, therefore every candidate must be able to demonstrate their competency.
*1a	This is part of the skill based assessment. If simulator training conforming to section 3.4 is used in the course, every candidate must be able to demonstrate their competency using the simulator.
*2	Not a skill requirement but must be demonstrated by the instructor and/or at least one candidate, depending on the amount of equipment available.
*2a	Not a skill requirement. If simulator training conforming to section 3.4 is used in the course, the demonstration may be conducted using the simulator.
*3	Knowledge may be covered using a video or an audio visual presentation

1) Introduction and Safety **0.75 hr Lecture**

Instructors will:

1.1) give an introduction
   1) learning objectives
   2) course syllabus
   3) who needs to follow this training course (for certification purposes, crewing purposes and to meet the new STCW-F Convention requirements)

1.2) present principles of safety
   1) Always follow instructor safety rules.
   2) Follow all safety precautions when handling actual equipment, such as pyrotechnics.
   3) Always be careful, even though the incidents are simulated.

1.3) give an overview of various documents, codes, regulations and standards available for review (LSA Code, SOLAS, *Marine Personnel Regulations*, TP 14335, etc.)

2) General **0.25 hr Lecture**

Instructors will:

2.1) review crew expertise
   1) explain that the effectiveness of the lifesaving equipment depends on the expertise of the crew
   2) review initial on-board familiarization, SOLAS and Canadian regulations, including review of chapter 4 of this TP

3) Lifeboats **0.5 hr Lecture & 2.5 hrs Practical**
(0.25 hr Lecture & 0.5 hr Practical & 2.25 hrs Simulation if simulation is being used)

Instructors will:

3.1) conduct a general review of:
1) precautions to take during winter or in presence of ice
2) the importance of following manufacturer's recommended maintenance guidelines
3) lifeboat davits maintenance
4) how to launch and handle lifeboats in ice[*2a]
5) how to launch lifeboats in rough sea[*2a]
6) how to clear the ship's side[*2a]
7) how to recover lifeboats during drills[*2a]
8) lifeboat engine and accessories[*2a]
9) lifeboat water spray system[*2a]
10) lifeboat self-contained air support system[*2a]

3.2) explain free-fall lifeboat davits
1) demonstrate free-fall launching[*2] or[*3]
2) explain key points when recovering free-fall lifeboat after a drill and demonstrate[*2] or [*3]
3) explain the importance of following manufacturer's recommended maintenance guidelines

3.3) enact various scenarios of lifeboat drills that include launching and recovering boats and at least one in cold climate[*] (may simulate cold climate scenario)
1) act as an efficient member of a launching/recovering crew[*1/*1a]
2) getting into lifeboats from ship[*1]
3) getting into lifeboats from the water[*1]
4) correctly secure yourself in it[*1]
5) bring an injured or exhausted survivor on board a lifeboat[*2]
6) correctly secure an injured crew member[*2]
7) correctly launch a lifeboat that is securely fasted under davits and clear the ship's side quickly[*2/*2a] & [*]
8) start and operate an inboard engine fitted in a enclosed lifeboat[*2/*2a]
9) steer a boat by compass[*2/*2a]
10) act as coxswain in handling a boat under power[*1/*1a]
11) stream a sea anchor[*2/*2a]
12) correctly use all equipment[*2]
13) properly care for and stow lifeboat[*2]
14) safely recover the boats[*2/*2a]
15) properly beach[*2] or[*3]

4) Rescue boats **0.5 hr Lecture & 2.5 hrs Practical**
(0.25 hr Lecture & 0.5 hr Practical & 2.25 hrs Simulation if simulator is being used)

Instructors will:

4.1) provide a general review of:
1) precautions to take during winter or in presence of ice
2) the importance of following the manufacturer's recommended maintenance guidelines

3) the importance of following the manufacturer's recommended maintenance guidelines for davits
4) rescue boat outboard engines
5) how to launch rescue boats in rough sea[*2a]
6) how to recover rescue boats[*2a]
7) how to marshall and tow liferafts and rescue survivors from the sea[*2a]

4.2) enact various scenarios of rescue boat drills, which include drills in launching and recovering boats[*]
1) how to act as an efficient member of a launching/recovery crew[*1 /*1a] & [*]
2) how to correctly launch a rescue boat and clear the ship's side quickly[*2/*2a] & [*]
3) how to correctly use all equipment[*2]
4) how to properly care for and stow rescue boat [*2]
5) how to steer a rescue boat by compass[*2/*2a]
6) how to act as coxswain in handling rescue boats[*1*1a]
7) how to pick up a survivor from the water[*1]&[*1a]
8) how to correctly get back on board, in full survival gear[*1]
9) how to correctly secure an injured crew member[*2]
10) how to safely bring the rescue boat alongside[*2/*2a]
11) how to safely transfer passenger/survivor[*2]
12) how to properly marshal liferafts[*2/*2a]
13) how to properly tow liferafts[*2/*2a]
14) how to properly beach rescue boats[*2] or [*3]

5) Liferafts, rigid hull liferafts and marine evacuation systems 0.5 hr Lecture & 2 hrs Practical

Instructors will:

5.1) describe and demonstrate liferafts
1) the proper stowage and releasing mechanism[*2] or [*3]
2) the importance of following manufacturer's recommended maintenance guidelines
3) special care in cold climate

Demonstrate:

a) how to put on a lifejacket/immersion suit correctly, without assistance, within one minute[*1]
b) how to put on a lifejacket/immersion suit correctly, without assistance, in total darkness[*1]
c) how to jump in the water from a height while wearing a lifejacket/immersion suit[*1]
d) how to use the attached whistle[*1]
e) how to take the heat-escape-lessening posture (HELP)[*1]
f) how to correctly launch an inflatable liferaft[*2]
g) how to correctly launch an davit-launched liferaft[*2]
h) how to board a liferaft from the water, while wearing a lifejacket [*1]
i) how to board a liferaft from the water, while wearing a survival suit[*1]
j) how to use the various gear and equipment in the survival pack[*2]
k) how to right an inverted liferaft while wearing a lifejacket[*1]
l) how to manoeuvre a liferaft and set the anchor to reduce drift[*2]
m) how to retrieve a man overboard[*1]
n) how to throw the rescue quoit and line to a person in the water[*2]
o) how to care for and stow liferafts[*2]

5.2) review how to handle liferafts in rough weather

5.3) descirbe and demonstrate float-free arrangements

1) characteristics and operation of the hydrostatic release units, including limitations and expiry date[*2] or [*3]
2) installation, including best position of the hydrostatic release[*2]

5.4) describe and demonstrate rigid hull liferafts and equipment
1) basic features of this type of liferafts[*2] or [*3]
2) how to get into a rigid hull liferaft from the water, with lifejacket and then with survival suit[*2] or [*3]

5.5) explain and demonstrate marine evacuation systems
1) the importance of following manufacturer's recommended maintenance guidelines
2) special care when launching in presence of ice
3) main type of marine evacuation systems[*3]

6) Survival, first aid and rescue **0.5 hr Lecture & 2 hrs Practical**

Instructors will:

6.1) review initial actions – reminders to:
1) take survivors in water on board
2) give all persons on board anti-seasickness tablets
3) properly secure survival craft together with the painter
4) properly use sea anchors
5) take immediate actions as:
a) stream the sea anchor
b) set an EPIRB to function
c) give people anti-seasickness pills
d) bail the craft dry
e) treat the injured
f) inflate the liferaft floor in cold conditions
g) get radio equipment ready
h) post lookouts
6) ventilate a liferaft after it has been inflated before closing the openings
7) remember that instructions on how to survive are in liferafts
8) properly apportion food and water

6.2) present actions to increase chances of survival and rescue
1) review of IMO MSC.1/Circ.1185/Rev 1(or latest version) on survival in cold water

6.3) give first aid demonstrations:
1) on a life-size dummy how to apply mouth-to-mouth or mouth-to-nose respiration[*2]
2) describe/demonstrate the signs of cardiac arrest[*2]
3) closed-chest cardiac compression on the dummy[*2]
4) how two people combine cardiac compression and mouth-to-mouth respiration[*2]
5) the recovery position for an unconscious person[*2]
6) how to use the resuscitation kit with oxygen/suction unit[*2] or [*3]
7) the content of the first-aid kit[*2]
8) how to correctly prepare a casualty in basket-type stretcher, ready for evacuation[*2]

6.4) review personal locator beacons – reminder
1) demonstrate how it works[*2] or [*3]

6.5) review how to recognize and operate signalling devices – reminder

6.6) describe and demonstrate GMDSS portable radios
   1) demonstrate throughout drills proper communication using a VHF[*1]

6.7) describe and demonstrate pyrotechnics
   1) demonstrate main types[*2]

6.8) describe and demonstrate line throwing devices
   1) how to correctly use a line throwing device[*2] (include a live demonstration as per policy in section 1.11)

6.9) describe and demonstrate rescue equipment
   1) rescue sling[*1]
   2) rescue basket[*3]
   3) rescue net[*2]

7) Helicopter assistance **0.25 hr Lecture & 0.25 hr Practical**

Instructors will:

7.1) describe communicating with the helicopter
   1) demonstrate signals used[*2]
   2) explain how to communicate with the helicopter through a shore station if the appropriate equipment is available

7.2) describe helicopter pick-up[*2] or [*3]
   1) demonstrate methods of pick-up by harness, stretcher and rescue net
   2) demonstrate hand and arm signals used for safe lifting
   3) describe how the helicopter crew assists in pick-up
   4) explain the importance of obeying the helicopter pilot's instructions.

13.9 EVALUATION

The evaluation consists of two parts:

1) 25 multiple-choice questions covering the complete knowledge and competency of the course. Passing mark to obtain the TCMSS training certificate is 70%.

2) practical assessment achieved during the course.
   The following legend indicates which competency is part of the skill-based assessment:

   [*1] this is part of the skill-based assessment, therefore every candidate must be able to demonstrate their competency.

   [*2] not a skill requirement but must be demonstrated by the instructor and/or at least one candidate, depending on the amount of equipment available.

   [a] A numeral followed by the letter "a" indicates that simulation conforming to the requirements in section 3.4 may be used for skills-based assessment.

   For drills marked with a [*], every candidate must demonstrate during the course that he can act as a lead team member on at least one drill involving lifeboats or liferafts and one drill involving a rescue boat.

14 PROFICIENCY IN FAST RESCUE BOATS (FRC)

14.1 GENERAL

This course meets the requirements of STCW Code Table A-VI/2-2, Proficiency in Fast Rescue Boats.

14.2 EQUIPMENT REQUIREMENTS

1) the practical lessons require access to open waters where candidates may encounter a variety of sea states. There must be showers, a changing room with lockers for trainee's dry clothing and a drying room for wet gear near the exercise area;

2) one approved fast rescue boat, with equipment, sited to allow launching into the open water. The rescue boat, davits, and the release and retrieval system must meet the functional requirements stated in SOLAS and comply with LSA Code requirements. The engine can be outboard or jet drive. (The fast rescue boat does not need to be approved for use at sea, but must be a training model of those found on SOLAS vessels);

3) one approved rescue boat, with equipment and engine (can be replaced by an approved lifeboat or a fast rescue boat which meets the requirements of an approved rescue boat), sited to allow launching into the open water. The rescue boat and the release and retrieval system must meet the functional requirements stated in SOLAS and comply with LSA Code requirements. (The rescue boat does not need to be approved for use at sea, but must be a training model of those found on SOLAS cargo vessels);

4) enough dry suits and wet suits (FRC gear) and lifejackets for all trainees and instructors for survival craft and fast rescue boats;

5) three 2-way radiotelephones approved for use in the boats and by the shore rescue team;

6) one of each: rescue sling and rescue net;

7) one rescue frame (Dacon Type);

8) one personal locator beacon (PLB);

9) one stretcher of suitable type for use in exercises;

10) paper or PDF copies for the candidates to review, of:
    a) TP 14335 – Winter Navigation on the River and Gulf of St. Lawrence,
    b) Ice Navigation in Canadian Waters, 2012 edition,
    c) International Life-Saving Appliance Code (LSA Code),
    d) copy of the International Aeronautical and Maritime Search and Rescue (IAMSAR, Vol III) Manual;

11) visual or audio-visual presentation on:
    a) various type of approved fast rescue boats,

b) hypothermia, its effects and ways to overcome it,

c) cold shock,

d) launching, handling and recovering a fast rescue craft in rough weather;

12) safety/first aid equipment comprising:

a) standby rescue boat,

b) first aid kit,

c) stretcher,

d) resuscitation kit with oxygen/suction unit.

14.3 DURATION

A minimum of 23 hours

Note: This duration is based on a maximum class size of six candidates. If an institution wishes to deliver this training course with a maximum of three candidates, a shorter timeframe can be approved on request.

14.4 PRE-REQUISITE AND MINIMUM AGE

1) a person must be at least 16 years of age to take the FRC course.

2) a person must hold a training certificate in Proficiency in Survival craft and Rescue Boats other than Fast Rescue Boats (PSC) (or equivalent under subsection 2.2 of chapter 2 of this standard) to take the FRC course.

14.5 INSTRUCTOR QUALIFICATIONS

1) Teachers and Instructors must be qualified in the tasks they teach and be appropriately trained in instructional techniques and training methods as set out in section A-I/6 of Part A of the 2010 STCW Code;

2) In the case of a specialized marine training course, the main course instructor, in addition to holding qualifications for teaching, must have received appropriate training and hold a valid TC instructor approval letter.

Note: If the course is under the supervision of more than one instructor, the assistant instructors must hold the qualifications required by subsection 1.6 of this TP.

14.6 GOALS

To enable course participants to learn about, understand and become proficient in:

1) the construction and outfit of fast rescue boats and individual items of their equipment;

2) particular characteristics and facilities of fast rescue boats;

3) taking safety precautions during launch and recovery of a fast rescue boat;

4) properly righting a capsized fast rescue boat;

5) properly handling a fast rescue boat in prevailing adverse weather and sea conditions;

6) the navigational and safety equipment in a fast rescue boat;

7) search patterns and environmental factors affecting their execution;

8) assessing the readiness of fast rescue boats and related equipment for immediate use;

9) the maintenance, emergency repairs, normal inflating and deflation of buoyancy compartments of inflated fast rescue boats;

10) properly starting and operating a fast rescue boat engine and its accessories.

14.7 OUTLINE

SUBJECT AREA	HOURS	
	LECTURE	PRACTICAL
1) Introduction and safety 1) Introduction 2) Principles of safety 3) Overview of various documents	0.75 hr	
2) Construction, outfit and characteristics 1) Construction and outfit of fast rescue boats 2) Individual items of equipment 3) Particular characteristics of a fast rescue boat	0.75 hr	0.75 hr
3) Equipment and engine 1) Boat equipment 2) Navigation equipment 3) Safety equipment 4) Emergency equipment 5) Inboard motor engines 6) Outboard motor engines 7) Water jet propulsion 8) Boat and equipment readiness 9) Drills in engine operation*	1.5 hrs	1.75 hrs
4) Launching and recovery 1) Launching arrangements 2) Safety precautions during launching and recovery 3) Launching and recovery in rough seas	1 hr	2 hrs

4) Drills in launching and recovery of fast rescue boats*		
5) Manoeuvring of FRC 1) Manoeuvring at slow speed 2) Manoeuvring at fast speed 3) Boat handling in adverse weather 4) Towing 5) Pacing and transfer	1.5 hrs	5 hrs
6) Righting a capsized fast rescue boat 1) Capsize 2) Demonstrate drills in righting capsized fast rescue boats*	0.5 hr	1.5 hrs
7) Search patterns and rescue 1) Initial information and action 2) Search pattern 3) Rescuing survivors from the sea 4) Casualty care 5) Drills in search and rescue* 6) Helicopter operation	1.5 hrs	3 hrs
8) Maintenance and emergency repairs 1) Describe routine maintenance on hull, sponsons and equipment 2) Describe the onboard maintenance of outboard motor engine and water jet propulsion 3) Describe the engine trouble shooting and action 4) Explain & demonstrate emergency repairs*2 or *3 5) Demonstrate sponson repair*2 or *3 6) Maintenance as per the manufacturer's manual 7) Winterization	0.5 hr	0.5 hr
9) Evaluation	0.5 hr	Within the course hours
TOTAL	**8.5 hrs**	**14.5 hrs**
	23 hrs	

14.8 SYLLABUS

Legend for practical demonstrations	
*1	This is part of the skill-based assessment, therefore every candidate must be able to demonstrate their competency.
*2	Not a skill requirement but must be demonstrated by the instructor and/or at least one candidate, depending on the amount of equipment available.
*3	Knowledge may be covered using a video or an audio visual presentation

1) Introduction and Safety **0.75 hr Lecture**

Instructors will:

1.1) give an introduction
   1) learning objectives
   2) course syllabus
   3) who needs to follow this training course (for certification or crewing purposes)

1.2) present principles of safety
   1) Always follow instructor safety rules .
   2) Follow all safety precautions when handling actual equipment, such as pyrotechnics.
   3) Always be careful even though the incidents are simulated.

1.3) give an overview of various documents, codes, regulations and standards available for review (LSA Code, IAMSAR, TP 14335, etc.)

2) Construction, outfit and characteristics **0.75 hr Lecture & 0.75 hr Practical**

Instructors will:

2.1) discuss construction and outfit of fast rescue boats
   1) describe the fast rescue boat designs based on hull forms, sheer line and dead rise angle
   2) explain the use of strakes, pads and sponsons on the hull
   3) explain the characteristics of hull forms with emphasis on performance predictability, reliability, survivability, user support, maintenance
   4) describe the construction and outfit of:
      a) rigid boats
      b) inflated boats
      c) combination of rigid and inflated boats
   5) state that inflated fast rescue boats should always be kept in fully inflated condition
   6) state the length of fast rescue boats
   7) interpret the markings on a fast rescue boat as to the normal/maximum number of persons it is permitted to carry
   8) demonstrate the outfit of fast rescue boats[*2] or [*3]
   9) demonstrate where to find the requirements (LSA Code, SOLAS)[*2]

2.2) discuss individual items of equipment
   1) list the personal life-saving appliances of a fast rescue boat's crew as:
      a) lifejackets
      b) immersion suits
      c) anti-exposure suits
   2) demonstrate how to handle and take care of personal life-saving appliances[*2] & [*3]
   3) explain where to find the requirements

2.3) describe particular characteristics of a fast rescue boat
   1) describe the particular characteristics of fast rescue boats in planing and displacement modes
   2) explain the reasons for aeration and its result on behavior of the boat
   3) describe the facilities in fast rescue boats
   4) state that arrangements for towing are permanently fitted in rescue boats

5) demonstrate particular characteristics and facilities of fast rescue boats[*2] & [*3]

3) Equipment and engine **1.5 hrs Lecture & 1.75 hrs Practical**

Instructors will:

3.1) present boat equipment
1) list the normal equipment of rigid fast rescue boats
2) list the normal equipment of inflated and rigid/inflated fast rescue boats
3) describe how to stow equipment
4) explain that the equipment not actually in use must be stowed in lockers so that they are not lost in the seaway or in the event of a capsize
5) describe how to use the equipment for normal inflation and deflation of buoyancy chambers of inflatable fast rescue boats

3.2) present navigation equipment
1) list the fast rescue boat equipment as:
a) magnetic compass
b) VHF radio
c) additional equipment may include GPS, radar

2) magnetic compass:
a) describe the errors on the magnetic compass, its effect on steering a course and the difficulties when effecting a search pattern

3) two-way VHF radiotelephone apparatus
a) outline the requirements of two-way VHF radiotelephone apparatus carried on fast rescue boats
b) demonstrate how to use of the equipment's[*2] controls and indicators
c) explain the main features
d) demonstrate the proper communication behavior for the FRC crew in different drills/operation[*1]
e) state that power supply has sufficient capacity for 8 hours operation

3.3) present safety equipment
1) list devices for signalling or attracting attention as:
a) pyrotechnics
b) daylight signalling mirror
c) whistle
d) searchlight
2) describe how to extinguish a fuel fire with the extinguisher provided in the boat
3) demonstrate how to use signalling equipment[*2]

3.4) present emergency equipment
1) list the emergency equipment
2) explain the use of emergency equipment as fire control, righting the capsized boat, towing, bellow for inflation of inflated fast rescue boats
3) demonstrate how to use emergency equipment[*2] & [*3]

3.5) discuss inboard motor engines
1) list the prestart checks of inboard motor engines
2) explain the importance of priming the engine

3) explain the manufacturer's instructions for setting controls
4) explain how to start the engine and adjust throttle
5) explain the importance of checking oil pressure and cooling system
6) explain how to operate ahead and astern propulsion
7) explain how to stop the engine and turn off fuel
8) describe the emergency stop device and how to use it
9) state the quality of fuel required for the engine
10) describe the emergency steering system

3.6) discuss outboard motor engines
1) describe the fast rescue boats' outboard engine with special emphasis on:
   a) securing arrangements, normal position during operation and tilted position when stowed
   b) fuel tank arrangements, connections and priming
   c) the cooling system
   d) using choke
   e) starting, throttle and stopping the engine
   f) changing the gear
2) list the prestart checks
3) explain how to start a cold outboard motor engine
4) explain the importance of following the manufacturer's specification for petrol/oil mixture to avoid damage to the engine
5) list the checks that are made when:
   a) the engine does not start
   b) engine power is reduced
   c) the engine runs normally
6) explain that starting an outboard motor out of water will quickly heat the engine and it will seize
7) explain that outboard engines should never be laid horizontally when transporting or stowing as cooling water may drain into the engine
8) describe the emergency stop device and how it works
9) describe the emergency steering system
10) explain and demonstrate boat handling with outboard engine[*2] or [*3]

3.7) describe water jet propulsion
1) describe the jet propulsion system
2) describe how to steer ahead and reversing the boat
3) list the prestart checks
4) explain how to set controls
5) explain how to start the engines and adjust throttle
6) explain the importance of checking the jet pressure
7) describe the controls for steering ahead, neutral, astern and pivoting about a point
8) describe how to stop the engine
9) describe the emergency stop device and how it works
10) explain and demonstrate boat handling with water jet propulsion[*2] or [*3]
11) explain the emergency steering system
12) compare the boat handling implication of various propulsion systems

3.8) describe boat and equipment readiness
1) explain the requirement for operational readiness
2) describe the checks for boat readiness
3) explain that batteries for engine starting, searchlight and fixed radio installation must be kept fully charged at all times

4) describe how batteries can be charged from the boat's engine
5) describe arrangements for charging batteries from the ship's power supplies
6) explain the importance of periodically testing radio VHF to confirm operational readiness
7) explain that the fuel must be replenished after every use and fuel tank kept full
8) explain the extra steps to assure boat and equipment readiness when navigating in cold climate

3.9) conduct drills in engine operation*
1) perform the prestart checking including communication*1
2) follow manufacturer's instructions and set controls*1
3) start engines and adjusts throttle*1
4) check jet pressure*1
5) operate controls for steering ahead, neutral, stern and pivoting about a point*1
6) stop the engine*1
7) use the emergency stop device *1
8) handle boats with motor engine and water jet propulsion*1 & *3

Note: Since the institution may have an FRC with one type of engine only, the candidates must obtain the skill for that type and learn particularities of the other engine types by means of video presentations.

4) Launching and recovery **1 hr Lecture & 2 hrs Practical**

Instructors will:

4.1) discuss launching arrangements
1) list the types of launching arrangements used for the boats
2) describe the construction of arrangements for stowage, securing, gripes and the methods of launching and recovering fast rescue boats
3) describe how to disengage lifting hooks
4) list the devices to dampen the forces during launch and recovery
5) explain that wire tensioning devices are fitted in the equipment
6) explain the importance of following manufacturer's maintenance guidelines
7) demonstrate various types of launching arrangements on different types of vessels*3

4.2) describe safety precautions during launching and recovery

Launching
1) list pre-launching checks
2) list hazards during launching of fast rescue boats
3) describe the safety precautions during launch and recovery of fast rescue boats
4) list personal preparation for manning the fast rescue boats
5) explain that the person in command of a fast rescue boat should check that all crew are present, suitably dressed, and correctly wearing lifejackets
6) describe preparations for launching and recovering fast rescue boats
7) explain the importance of checking to ensure that hands and arms are clear of the boat's sides
8) explain that inboard engines of fast rescue boats should be started out of the water
9) explain that outboard motors should never be started out of the water
10) state the importance of seeing that it is clear below before lowering fast rescue boats
11) explain that boats should only be lowered on instructions from the master
12) list actions to take when called to fast rescue boats stations
13) explain what the person in charge should do if it proves impossible to launch a fast rescue boat

14) demonstrate the best position to take for a crew member in the FRC, when launching it[*2] or [*3]

Recovery

1) explain how to handle a boat under power while coming alongside a ship or quay
2) explain that the painter helps keep a fast rescue boat alongside
3) list the safety precautions during recovery of fast rescue boats
4) explain the importance of making checks and warning the crew before giving the signal to hoist
5) explain that the coxswain should ensure that boat is properly stowed and it is his or her responsibility to check that the boat is secure

4.3) discuss launching and recovery in rough seas

1) explain how to reduce the risk of danger to fast rescue boats or injury to occupants during lowering if the ship is rolling heavily
2) explain how to lower a boat into heavy swell
3) explain that blocks may be lifted as soon as unhooked to prevent injury to occupants
4) explain how to use an on-load release system
5) describe how to get clear from ship's side
6) demonstrate how to launch and recover fast rescue boats in rough seas[*3]

4.4) conduct drills in launching and recovering fast rescue boats[*]

1) how to act as an efficient member of the launching crew[*1]
2) how to take charge and allocate duties for launching, handling and recovery[*1]
3) how to perform pre-launch checks[*1]
4) how to prepare and safely launch fast rescue boats and clear the ship's side quickly[*1]
5) how to get away from the weather side of a ship (or dock)[*1]
6) how to start and operate an inboard engine, outboard engine or jet-propelled engine as fitted in fast rescue boats[*1]
7) how to act as coxswain in handling fast rescue boats[*1]
8) how to properly use individual items of fast rescue boats[*2]
9) how to safely recover the boats[*1]

5) Manoeuvring of FRC **1.5 hrs Lecture & 5 hrs Practical**

Instructors will:

5.1) discuss manoeuvring at slow speed

1) explain displacement and planing modes and the effect on performance of fast rescue boats in slow manoeuvring and handling
2) explain pivot point and its shift with fast rescue boat in motion
3) describe effect of external forces on boat handling
4) list factors for overall effects at low power performance
5) demonstrate how to get away and come alongside a parent vessel or to a place of safety ashore[*1]
6) demonstrate how to steer fast rescue boats and steer by compass[*1]
7) demonstrate how to operate a fast rescue boat in open sea[*1]

5.2) discuss manoeuvring at fast speed

1) explain that to maintain adequate control, the fast rescue boat must always be driven with one hand on the helm and one on the throttle
2) explain that fast turning the boat at high speed may capsize the boat even in calm weather

3) demonstrate how to steer fast rescue boats at high speed[*1]

5.3) describe boat handling in adverse weather
1) explain characteristics that influence control
2) explain that for the success of operation, use a maximum speed that ensures overall crew's safety and comfort
3) describe how to use the sea anchor
4) demonstrate how to operate the boat in rough weather[*3]

5.4) discuss towing
1) demonstrate equipment on fast rescue boats to effect a tow[*2]
2) explain that establishing communications and getting complete information is essential to ensure a successful towing operation
3) explain the types of tow fast rescue boats can perform
4) describe the preparations for a tow
5) explain that all preparation must be made before approaching the tow
6) explain the factors to consider when making an approach

Drills in towing[*]:
1) demonstrate fastening for side and stern tow[*2]
2) demonstrate action for control of towing[*2]
3) demonstrate release of tow and transfer to parent vessel/ashore[*2]
4) drills in side towing[*]:
   a) take charge of the boat and give correct commands for executing a side tow[*1]
   b) communicate and establish the type of tow and procedure to adopt[*1]
   c) prepare for a side tow[*2]
   d) make correct approach for coming alongside[*1]
   e) come alongside and make fast a disabled boat[*1]
   f) tow the boat a short distance[*1]
   g) control the steering to let go the tow or transfer to parent vessel or ashore[*1]
5) drills in stern towing[*]:
   a) take charge of the boat and give correct commands for executing a stern tow[*1]
   b) communicate and establish the type of tow and procedure to adopt[*1]
   c) prepare for a stern tow[*2]
   d) make correct approach for taking in the tow line[*1]
   e) take in the tow line and make fast a disabled boat[*2]
   f) tow the boat a short distance[*1]
   g) control the steering to let go the tow or transfer to parent vessel or ashore[*1]

5.5) discuss pacing and transfer
1) list reasons for pacing
2) explain hazards involved with pacing and transfer
3) explain the importance of weighing the hazards and benefits; and only attempting transfer of persons in an emergency
4) explain factors to consider for approach, pacing, transfer and departure
5) explain the need for control of steering while pacing and transfer
6) list safety rules while pacing and transfer
7) describe pacing and correct positioning of vessels for coming alongside
8) recommend making a fresh attempt in case of failure to correctly position the fast rescue boat on first approach

Demonstrate various drills in pacing and transfer[*]:
1) take charge of the boat and give correct commands to the crew for pacing and transfer[*1]
2) use communication to establish procedure[*1]

3) make correct approach for pacing[*1]
4) position correctly for coming alongside[*1]
5) come alongside and execute transfer[*1]
6) depart safely[*1]

6) Righting a capsized fast rescue boat 0.5 hr Lecture & 1.5 hrs Practical

Instructors will:

6.1) discuss capsizing
1) list most probable reasons for capsize
2) list implications of a capsize
3) explain actions to take in the event of a capsize
4) describe how to right capsized fast rescue boats
5) list actions to take after righting the boat
6) demonstrate a real FRC righting exercise if using a dummy boat for drill[*3]

6.2) demonstrate drills in righting capsized fast rescue boats[*]:
1) put the wet suit on correctly and participate in capsize drill[*5]
2) take correct actions after capsize[*1]
3) swim away from capsized boat[*1]
4) group with others away from the boat[*1]
5) right the capsized boat[*2]
6) board the boat, in full gear[*1] & [*5]
7) help others board the boat[*2]

[*5]: Note that if this competency is done in a pool with a dummy boat (not a FRC), candidates must demonstrate the competency of coming back on board the FRC from the water in full gear, when in open water.

7) Search patterns and rescue 1.5 hrs Lecture & 3 hrs Practical

Instructors will:

7.1) discuss initial information and action
1) explain that fast boats can be used to:
a) search, locate, retrieve and care for causalities in water
b) marshal liferafts
c) tow the liferafts, lifeboats, rescue boats
2) describe action upon receiving initial information
3) explain that the coxswain is responsible for crew safety, boat safety, casualty safety and must therefore decide if it is safe to carry out the rescue operation
4) explain contingency planning for rescue operations

7.2) discuss search patterns
1) list common types of search pattern
2) describe the search patterns with emphasis on:
a) assessment of dangers
b) lookout by crew
c) search speed
d) track spacing
e) line of drift

3) explain the disadvantages of sector search pattern when using fast rescue boats
4) explain the criteria for selection of sweep width as:
    a) type of object
    b) visibility
    c) height of eye
5) explain that during search, the coxswain must only concentrate on navigation and the crew on lookout and signalling
6) list factors that affect search in fast rescue boats as:
    a) difficulty in maintaining course due to limitations of magnetic compass
    b) effect of wind and current on fast rescue boats
    c) shadow areas between waves
7) state that orientation in fast rescue boats can best be maintained with the help of transits, bearing of conspicuous objects in vicinity, swell direction, wind direction, sun reflection, propeller wash
8) demonstrate how to use the IAMSAR, Vol. III Manual[*2]

7.3) describe rescuing survivors from the sea

1) describe how to pick up a survivor from the water
2) describe how to bring an injured or exhausted survivor on board fast rescue boats
3) demonstrate the proper use of various types of rescue frames[*2] & [*3]
4) explain that anyone entering the water to assist a survivor must have a line attached
5) explain how to retrieve a casualty from water with emphasis on:
    a) crew signals
    b) approach speed
    c) approach course with respect to wind and current
    d) steering control
    e) crew preparation
6) explain that it is important that the coxswain control the steering while crew organizes and picks up the survivor
7) list methods of retrieving casualty from water in:
    a) vertical position
    b) horizontal position
    c) rescue net/basket
8) demonstrate methods of retrieving a casualty from water[*2]
9) describe recovery of man overboard technique as:
    a) assessing the situation
    b) maintaining lookout
    c) selecting pickup side on the basis of wind and current
    d) heading into the wind/current
    e) aiming for man
    f) taking way off
    g) steering control
    h) making final checks
    i) aborting and continuing
10) describe and demonstrate:
    a) rescue sling[*1]
    b) rescue basket[*3]
    c) rescue net[*2]

7.4) explain casualty care
1) explain that making a quick assessment of a casualty's condition is vital for his or her survival
2) explain the importance of giving priority to the casualty's breathing and circulation
3) list actions for restoring respiration and circulation
4) list symptoms of hypothermia and frostbite
5) explain that heartbeat and breathing may be very feeble and difficult to detect in severe cases, but heart compression and artificial respiration will do more harm than good
6) demonstrate casualty care on unconscious person by positioning him safely in boat[*1]
7) demonstrate casualty care on conscious persons by seating them safely in the boat[*1]

7.5) conduct drills in search and rescue[*]
1) how to take charge of the boat and give correct command for lookout and signalling[*1]
2) how to carry out search patterns[*1]
3) how to make correct approach for the casualty[*1]
4) how to control steering and engine on arrival at site and during recovery[*1]
5) how to pick up survivor from the water using the rescue frame[*1]
6) how to place survivor in stretcher[*1]
7) how to depart safely from the site[*1]
8) how to safely bring rescue boat alongside[*1]
9) how to safely disembark the survivor (dummy)[*1]

7.6) explain helicopter operations
1) describe:
a) communication
b) signalling
c) preparation
d) method of transfer
2) list hazards and general safety rules
3) demonstrate a transfer with a helicopter[*3]

8) Maintenance and emergency repairs 0.5 hr Lecture & 0.5 hr Practical

Instructors will:

1) describe routine maintenance on hull, sponsons and equipment
2) describe the onboard maintenance of outboard motor engine and water jet propulsion
3) describe the engine trouble shooting and action
4) explain and demonstrate emergency repairs[*2] or [*3]
5) demonstrate sponson repair[*2] or [*3]
6) stress the importance of following the manufacturer's maintenance manual
7) describe winterization

14.9 EVALUATION

The evaluation consists of two parts:

1) 25 multiple-choice questions covering the complete knowledge and competency of the course. Passing mark to obtain the TCMSS training certificate is 70%.

2) practical assessment achieved during the course.
The following legend indicates which competency is part of the skill-based assessment:

[*1] This is part of the skill-based assessment, therefore every candidate must be able to demonstrate their competency.

[*2] Not a skill requirement but must be demonstrated by the instructor and/or at least one candidate, depending on the amount of equipment available.

For drills marked with a [*], every candidate must demonstrate during the course that he can act as a lead team member on at least one towing drill, one pacing/transfer drill and one drill pertaining to the search and rescue section.

15 REFRESHER TRAINING COURSE IN PROFICIENCY IN FAST RESCUE BOATS (REF-FRC)

15.1 GENERAL

1) this refresher training course meets the requirements of Chapter VI, Section A-VI/2, paragraph 11 of the STCW Convention, including 2010 Manila Amendments.

2) seafarers qualified in fast rescue boats in accordance with STCW Convention Chapter VI, Section A-VI/2, paragraph 10, must, every five years, provide evidence of having maintained the required standard of competence to undertake the tasks, duties and responsibilities listed in column 1 of table A-VI/2-2 of the Convention.

15.2 EQUIPMENT REQUIREMENTS

1) the practical lessons require access to open waters where candidates may encounter a variety of sea states. Showers, a changing room with lockers for trainee's dry clothing and a drying room for wet gear should be provided near the exercise area;

2) one approved fast rescue boat, with equipment, sited to allow launching into the open water. The rescue boat, davits, and the release and retrieval system must meet the functional requirements stated in SOLAS and comply with LSA Code requirements. The engine can be outboard or jet drive. (The fast rescue boat does not need to be approved for use at sea, but must be a training model of those found on SOLAS vessels);

3) one approved rescue boat, with equipment and engine (can be replaced by an approved lifeboat or a fast rescue boat which meets the requirements of an approved rescue boat), sited to allow launching into the open water. The rescue boat and the release and retrieval system must meet the functional requirements stated in SOLAS and comply with LSA Code requirements. (The rescue boat does not need to be approved for use at sea, but must be a training model of those found on SOLAS cargo vessels);

4) enough dry suits and wet suits (FRC gear) and lifejackets for all trainees and instructors for survival craft and fast rescue boats;

5) three 2-way radiotelephones approved for use in the boats and by the shore rescue team;

6) one of each: rescue sling and rescue net;

7) one rescue frame (Dacon Type);

8) one personal locator beacon (PLB);

9) one stretcher of suitable type for use in exercises;

10) paper or PDF copies for the candidates to review, of:

   a) TP 14335 – Winter Navigation on the River and Gulf of St. Lawrence,

   b) Ice Navigation in Canadian Waters, 2012 edition,

   c) International Life-Saving Appliance Code (LSA Code),

d) copy of the International Aeronautical and Maritime Search and Rescue (IAMSAR, Vol III) Manual;

11) visual or audio-visual presentation on:

a) various type of approved fast rescue boats,

b) hypothermia, its effects and ways of overcoming it,

c) cold shock,

d) launching, handling and recovering a fast rescue craft in rough weather;

12) safety/first aid equipment:

a) standby rescue boat,

b) first aid kit,

c) stretcher,

d) resuscitation kit with oxygen/suction unit.

15.3 DURATION

A minimum of 14 hours

Note: This duration is based on a maximum class size of six candidates. If an institution wishes to deliver this training course with a maximum of three candidates, it can request approval of a shorter timeframe.

15.4 PRE-REQUISITE AND MINIMUM AGE

1) a person must be at least 16 years of age to take the REF-FRC course.

2) a person must hold a training certificate in Proficiency in Fast Rescue Boats (FRC) (or equivalent under subsection 2.2 of chapter 2 of this standard) to take the REF-FRC course.

15.5 INSTRUCTOR QUALIFICATIONS

1) Teachers and Instructors must be qualified in the tasks they teach and be appropriately trained in instructional techniques and training methods as set out in section A-I/6 of Part A of the 2010 STCW Code;

2) In the case of a specialized marine training course, the main course instructor, in addition to holding qualifications for teaching, must have received appropriate training and hold a valid TC instructor approval letter.

3) **Note:** If the course is under the supervision of more than one instructor, the assistant instructors must hold the qualifications required by subsection 1.6 of this TP.

15.6 GOALS

This refresher training course is designed to comply with the regulations and to refresh the seafarers' skills in basic emergency duties through demonstrations and practical drills and exercises.

15.7 OUTLINE

SUBJECT AREA	HOURS	
	LECTURE	PRACTICAL
1) Introduction and safety 1) Introduction 2) Principles of safety	0.5 hr	
2) General 1) General – reminder 2) Launching and recovery in rough seas 3) Drills in launching and recovery of fast rescue boats*	1 hr	3 hrs
3) Manoeuvring of FRC 1) Manoeuvring at slow speed – reminder 2) Manoeuvring at fast speed 3) Boat handling in adverse weather 4) Towing – demonstrate drills 5) Pacing and transfer – demonstrate drills	1 hr	3 hrs
4) Righting a capsized fast rescue boat 1) Capsize – reminder 2) Demonstrate drills in righting capsized fast rescue boats*	0.25 hr	1.5 hrs
5) Search patterns and rescue 1) Initial information and action – reminder 2) Drills in search and rescue*	0.25 hr	3 hrs
6) Evaluation	0.5 hr	Within the course hours
TOTAL	**3.5 hrs**	**10.5 hrs**
	14 hrs	

15.8 SYLLABUS

Legend for practical demonstrations	
*1	This is part of the skill-based assessment, therefore every candidate must be able to demonstrate their competency.
*2	Not a skill requirement but must be demonstrated by the instructor and/or at least one candidate, depending on the amount of equipment available.
*3	Knowledge may be covered using a video or an audio visual presentation

1) Introduction and Safety — 0.5 hr Lecture

Instructors will:

1.1) give an introduction
   1) learning objectives
   2) course syllabus

1.2) present principles of safety
   1) Always follow instructor safety rules
   2) Follow all safety precautions when handling actual equipment, such as pyrotechnics
   3) Always be careful, even though the incidents are simulated

2) General — 1 hr Lecture & 3 hrs Practical

Instructors will:

2.1) provide a general reminder:
   1) describe the particular characteristics of fast rescue boats in planing and displacement modes
   2) demonstrate particular characteristics and facilities of fast rescue boats[*2] & [*3]
   3) demonstrate the proper communication behavior for the FRC crew in different drills/operation[*1]
   4) explain and demonstrate how to handle a boat with outboard engine[*2] or [*3]
   5) explain and demonstrate how to handle a boat with water jet propulsion[*2] or [*3]
   6) describe boat & equipment readiness, including special care in cold climate
   7) explain the emergency stop device and demonstrate how it works[*1]
   8) demonstrate how to handle the boat with motor engine and water jet propulsion[*1] & [*3]

   Note: Since the institution may have an FRC with one type of engine only, the candidates must obtain the skill for that type and receive demonstration of particularities of the other engine types by means of video presentations that:

   1) list pre-launching checks
   2) demonstrate various types of launching arrangements on different types of vessel[*2] &[*3]
   3) describe the safety precautions during launch and recovery of fast rescue boats
   4) list actions to take when called to fast rescue boats stations
   5) demonstrate the best position to take for a crew member in the FRC, when launching it[*2] or [*3]
   6) discuss and demonstrate maintenance as per the manufacturer's manual and winterization

2.2) describe launching and recovery in rough seas
   1) explain how to reduce the risk of danger to fast rescue boats or injury to occupants during lowering if the ship is rolling heavily
   2) explain how to lower a boat into heavy swell
   3) demonstrate launch and recovery of fast rescue boats in rough seas[*3]

2.3) conduct drills in launching and recovery of fast rescue boats[*]
   1) how to act as an efficient member of the launching crew[*1]
   2) how to take charge and allocate duties for launching, handling and recovery[*1]
   3) how to perform pre-launch checks[*1]
   4) how to prepare and safely launch fast rescue boats and clear the ship's side quickly[*1]
   5) how to get away from the weather side of a ship (or quay)[*1]

6) how to start and operate an inboard engine, outboard engine or jet-propelled engine as fitted in fast rescue boats[*1]
7) how to act as coxswain in handling fast rescue boats[*1]
8) how to properly use individual items of fast rescue boats[*2]
9) how to safely recover the boats[*1]

3) Manoeuvring of FRC **1 hr Lecture & 3 hrs Practical**

Instructors will:

3.1) review how to manoeuvre at slow speed – reminder
1) explain main principle
2) demonstrate how to get away and come alongside a parent vessel or to a place of safety ashore[*1]
3) demonstrate how to steer fast rescue boats and steer by compass[*1]
4) demonstrate how to operate fast rescue boats in open sea[*1]

3.2) review how to manoeuvre at fast speed
1) reminder of main principle
2) demonstrate how to steer fast rescue boats at high speed[*1]

3.3) review how to handle a boat in adverse weather
1) reminder of main principle
2) demonstrate how to operate in rough weather[*3]

3.4) demonstrate drills in towing[*]
1) demonstrate equipment provided on fast rescue boats to effect a tow[*2]
2) demonstrate fastening for side and stern tow[*2]
3) demonstrate how to control towing[*2]
4) demonstrate how to release tow and transfer to parent vessel/ashore[*2]
5) drill in side towing[*]:
    a) be an active member during a side towing operation, including communication, preparation, securing and towing[*1]
    b) tow the boat a short distance[*1]
    c) control the steering to let go the tow or transfer to parent vessel or ashore[*1]
6) drills in stern towing[*]:
    a) be an active member during a stern towing operation, including communication, preparation, securing and towing[*1]
    b) tow the boat a short distance[*1]
    c) control the steering to let go the tow or transfer to parent vessel or ashore[*1]

3.5) explain and demonstrate pacing and transfer[*]:
1) list safety rules while pacing and transfer
2) how to be an active member during a pacing and a transfer drill, including communication, preparation, approach, pacing, transfer and departure[*1]

4) Righting a capsized fast rescue boat **0.25 hr Lecture & 1.5 hrs Practical**

Instructors will:

4.1) review how to respond in a capsize - reminder
1) explain actions to take in the event of a capsize
2) describe how to right capsized fast rescue boats
3) demonstrate a real FRC righting exercise if using a dummy boat for drill[*3]

4.2) demonstrate drills in righting capsized fast rescue boats[*]:
1) put on the wet suit correctly and participates in capsize drill[*5]
2) take correct actions after capsize[*1]
3) swim away from capsized boat[*1]
4) group with others away from the boat[*1]
5) right the capsized boat[*2]
6) board the boat, in full gear[*1] & [*5]
7) help others board the boat[*2]

[*5]: **Note**: If this competency is done in a pool with a dummy boat (not a FRC), candidates must demonstrate the competency of coming back on board the FRC from the water in full gear when in open water.

5) Search patterns and rescue **0.25 hr Lecture & 3 hrs Practical**

Instructors will:

5.1) review initial information and action
1) search patterns: list, describe and state the advantages and disadvantages of each
2) demonstrate the proper use of various types of rescue frames[*2] & [*3]
3) demonstrate methods of retrieving casualty from water[*2]
4) list main steps to take in casualty care
5) demonstrate casualty care in the boat[*1]
6) describe communication and signalling to a helicopter
7) demonstrate a casualty transfer with a helicopter, including proper communication[*3]
8) demonstrate use of rescue sling[*1], rescue basket[*3] and rescue net[*2]

5.2) carry out drills in search and rescue[*]
1) how to be an active crew member when carrying a search and rescue pattern[*1]
2) how to demonstrate communication, proper approach, pick up and departing from the site[*1]
3) how to demonstrate the ability to safely disembark the survivor (dummy)[*1]

15.9 EVALUATION

The evaluation consists of two parts:

1) 25 multiple-choice questions covering the complete knowledge and competency of the course. Passing mark to obtain the TCMSS training certificate is 70%.

2) practical assessment achieved during the course.
The following legend indicates which competency is part of the skill-based assessment:

[*1] this is part of the skill-based assessment, therefore every candidate must be able to demonstrate their competency.

[*2] not a skill requirement but must be demonstrated by the instructor and/or at least one candidate, depending on the amount of equipment available.

For drills marked with a [*], every candidate must demonstrate during the course that he can act as a lead team member on at least one towing drill, one pacing/transfer drill and one drill pertaining to the search and rescue section.

16 ADVANCED FIRE FIGHTING (AFF)

16.1 GENERAL

This course meets the requirements of STCW Code Table A-VI/3, Advanced Fire Fighting.

16.2 EQUIPMENT REQUIREMENTS

1) a two-storey steel rectangular vessel mock-up measuring approximately 11m x 6m x 2.6m. The mock-up must have:
   - compartments such as cabins, corridors, open rooms, an electric switchboard room, an engine room with a grating floor, and connecting doors, to expose participants in a realistic manner to shipboard fires; every room in the building must be readily accessible from the outside;
   - means to teach participants how to use escape ladders and hatchways and how to effectively cope with engine room fires;
   - an efficient communication system whereby commands from a command post can be relayed to participants at the emergency locations within the mock-up;
   - Posters of escape routes.

2) a fire box with an open top and with its front divided into compartments, in which participants can light and extinguish three types of fire. alternatively, participants can use:
   - steel trays approximately 1m x 1m x 0.3m high with a raised back plate; or
   - an approved propane gas-fuelled fire simulator;

3) a steel or open concrete pit approximately 2.5m x 2.5m x 0.3m for simulating large oil fires (an approved propane gas-fuelled fire simulator may also be used);

4) means of simulating engine room bilge oil fires (an approved propane gas-fuelled fire simulator may also be used);

5) a complete firefighter's outfit for each participant (including protective clothing, coveralls, gloves, fire boots, helmet, and waterproof clothing);

6) steel trays for containing fires (or approved propane gas-fuelled fire simulator);

7) one smoke generator (smoke bomb can be used);

8) two fire hydrants with two outlets each, with keys and bars to operate the water supply;

9) enough fuel (wood, diesel fuel, lubricating oil, etc.) for the fire trays (enough gas if using an approved propane gas-fuelled fire simulator);

10) six approved nozzles of various types;

11) enough hoses and water pressure to supply at least two 38 mm nozzles at each live fire location (minimum two locations);

12) equipment for generating and applying high/medium/low expansion foam, and foam compound;

13) one international shore connection;

14) a set of self-contained breathing apparatus (SCBA), complete with spare cylinders, spare parts and maintenance tools for 100 % of the participants, one set for use by the instructors and for persons with beard refer policy as per subsection 1.11;

15) facilities and equipment for cleaning, inspecting, refilling and caring for SCBA after use (or a memorandum of understanding with an approved facility);

16) various types of portable extinguishers (dry chemical, CO_2, water and foam) in sufficient number for every participant's practical demonstration;

17) two life lines (36 meters long) with snap hooks;

18) dummies, for search and rescue procedures;

19) different types of detectors used on board ships;

20) one first aid kit;

21) one hand operated resuscitator, air and oxygen type;

22) one fully automatic resuscitator;

23) paper or PDF copies for the candidates to review, of:

a) SOLAS Convention,

b) BCH Code,

c) IMDG Code (supplement only),

d) IGC Code,

e) IBC Code,

f) International Medical Guide for Ships,

g) Canadian regulations pertaining to fire prevention and training.

16.3 DURATION

A minimum of 35 hours

16.4 PRE-REQUISITE AND MINIMUM AGE

1) a person must be at least 16 years of age to take the AFF course.

2) STCW code table A-VI/3 regarding advanced fire fighting may require a fit test before taking the course. For further details please contact the recognized institution;

3) a person must hold a training certificate in STCW Basic Safety (or equivalent as per subsection 2.2 of chapter 2 of this standard) before taking the Advanced Fire Fighting (AFF) course.

16.5 INSTRUCTOR QUALIFICATIONS

1) Teachers and Instructors must be qualified in the tasks they teach and be appropriately trained in instructional techniques and training methods as set out in section A-I/6 of Part A of the 2010 STCW Code;

2) In the case of a specialized marine training course, the main course instructor, in addition to holding qualifications for teaching, must have received appropriate training and hold a valid TC instructor approval letter.

Note: If the course is under the supervision of more than one instructor, the assistant instructors must hold the qualifications required by subsection 1.6 of this TP.

16.6 GOALS

To enable course participants to learn about, understand and become proficient in:

1) fire fighting procedures at sea and in port with particular emphasis on organization, tactics and command;

2) use of water for fire-extinguishing, the effect on ship stability, precautions and corrective procedures;

3) communication and co-ordination during fire fighting operations;

4) ventilation control, including smoke extraction;

5) control of fuel and electrical systems;

6) fire fighting process hazards (dry distillation, chemical reactions, boiler uptake fires, etc.);

7) fire fighting involving dangerous goods;

8) fire precautions and hazards associated with storing and handling materials (paints, etc.);

9) managing and controlling injured persons;

10) procedures for co-ordination with shore-based firefighters;

11) preparing contingency plans;

12) composition of fire parties and allocation of personnel to fire parties;

13) strategies and tactics for controlling fires in various parts of the ship;

14) fire-detection systems;

15) fixed fire-extinguishing systems;

16) portable and mobile fire-extinguishing equipment, including appliances, pumps and rescue, salvage, life-support, personal protective and communication equipment;

17) requirements for statutory and classification societies;

18) assessing cause of incidents involving fire.

16.7 OUTLINE

SUBJECT AREA	HOURS	
	LECTURE	**PRACTICAL**
1) Introduction and safety 1) Introduction, safety and principles	0.75 hr	
2) Fire cause and prevention 1) Review of fire theory 2) Areas of fire hazard 3) Fire prevention 4) Fire fighting gear – reminder 5) Regulatory requirements – outfits and gear	2.5 hrs	1 hr
3) Fire fighting systems 1) Structural fire protection – brief overview 2) Various types of vessel main fire fighting systems 3) Dangers of using water for fire fighting 4) Inspection of the fire mains, including hydrants, hoses and nozzles 5) Fire detection equipment 6) Fixed fire extinguishing systems 7) Portable and mobile extinguishing systems	4.5 hrs	3 hrs
4) Training of crew members 1) Crew familiarization and training 2) Communication and coordination during fire fighting operations 3) Ventilation	3.25 hrs	14 hrs
5) Management and control of injured persons 1) Rescue equipment	1.5 hrs	2 hrs
6) Lesson learned 2) Past and recent fire incidents 3) Investigation and reporting	2 hrs	
7) Evaluation	0.5 hr	Within the course hours
TOTAL	**15 hrs**	**20 hrs**
	35 hrs	

16.8 SYLLABUS

Legend for practical demonstrations	
*	This may also be achieved by using an approved propane gas-fuelled fire simulator.
*1	This is part of the skill-based assessment, therefore every candidate must be able to demonstrate their competency.
*2	Not a skill requirement but must be demonstrated by the instructor and/or at least one candidate, depending on the amount of equipment available.
*3	Knowledge may be covered using a video or an audio visual presentation

Note: An instructor may want to review IMO model course 2.03 on advanced fire fighting when preparing his course material.

1) Introduction and safety **0.75 hr Lecture**

Instructors will:

1.1) give an introduction, present fire safety and survival principles
   1) list the main aims of the course as:
      a) to organize and train fire parties
      b) to inspect and service fire detection and extinguishing systems and equipment
      c) to control fire fighting operations on board ships
      d) to investigate and compile reports on incidents involving fire

   2) list the safety rules laid down which must be adhered to during the course

   3) list the principles of survival in relation to fire as:
      a) knowledge of theory of fire precautions
      b) regular and realistic training and drills
      c) formulating contingency plans for fire emergency
      d) identifying emergency escape
      e) identifying dangers of smoke and toxic fires
      f) regular inspection and maintenance of:
         i. fire-detection equipment
         ii. portable and mobile fire extinguishers
         iii. fixed fire fighting equipment
         iv. firefighters outfits

2) Fire cause and prevention **2.5 hrs Lecture & 1 hr Practical**

Instructors will:

2.1) review fire theory
   1) fire tetrahedron
   2) classes of fire
   3) stages of fire development
   4) methods of heat transfer
   5) products of combustion
   6) extinguishing principles

7) extinguishing agents and techniques
8) properties of flammable materials
9) dry distillation

Note: Instructors may use a video to illustrate the above.

2.2) describe areas of fire hazard
1) list causes and methods of detecting, containing and extinguishing fires in:
a) the machinery space
b) the accommodation
c) the galley
d) battery rooms and electrical rooms
e) cargo spaces and containers
f) different stores found on board, including flammable goods stores

2.3) describe fire prevention
1) prevention measures relevant to vessel operations
2) fire safety procedures
3) storage of flammable stores
4) dry dock procedures

2.4) review fire fighting gear – reminder
1) fireman's outfits
2) self-contained breathing apparatus (SCBA)
3) fireproof life and signalling lines
4) protective clothing found on board, safety lamps and fireman's axes
5) maintenance and special protection when sailing in cold climate

Demonstrate:
a) how to prepare gear so it is ready to be used[*2]
b) how to put on the complete fireman's outfit in a timely manner[*1]
c) how to use the lifeline for signalling[*2] or [*3]
d) how to use a fire blanket[*2]
e) how to properly use a fire axe[*2] or [*3]

Note: The instructor can spread out these demonstrations during drills

2.5) present regulatory requirements – outfits and gear
1) SOLAS
2) Canadian requirements for domestic vessels
3) special requirements for various type of vessels, including oil tankers, chemical & gas tankers and passenger vessels

3) Fire fighting systems **4.5 hrs Lecture & 3 hrs Practical**

Instructors will:

3.1) give a brief overview of structural fire protection
1) SOLAS and Canadian requirements
2) functional requirements
3) special requirements for passenger vessels and Ro/Ro vessels
4) extra requirements, as stated in SOLAS, IMDG code, BC Code, IBC/BCH Code & IGC Code

3.2) explain various types of vessel main fire fighting systems including:
1) purpose and parts of the fire mains system
2) water supply
3) main and emergency pumps
4) piping arrangements for fire fighting with water
5) hydrants, hoses and nozzles

Demonstrate:
a) how it works[*2] or [*3]
b) care and maintenance[*2] or [*3]
c) special care when sailing in cold climate[*2] or [*3]

3.3) describe dangers of using water for fire fighting
1) effect on stability
2) electrical hazards
3) chemical hazards
4) effect on stability, precaution and corrective procedures
5) precaution when in cold climate
6) demonstrate what may go wrong[*3]

3.4) describe inspection of the fire mains, including hydrants, hoses and nozzles
1) pressure testing
2) corrosion
3) valves and fittings
4) testing of hoses and nozzles

Demonstrate:
a) how it works[*2] or [*3]
b) care and maintenance[*2] or [*3]
c) special care when sailing in cold climate[*2] or [*3]

3.5) describe fire detection equipment
1) fire detection systems on various types of vessels
2) fire control panels
3) automatic fire doors
4) heat detectors
5) flame detectors
6) fire gas detectors
7) describe fire alarms

Demonstrate:
a) how they work[*2] or [*3]
b) care and maintenance[*2] or [*3]
c) special care when sailing in cold climate[*2] or [*3]

3.6) describe fixed fire extinguishing systems
1) water based
2) foam based
3) gas
4) dry chemical and wet chemical
5) any new types on the market

Demonstrate:
a) how they work[*2] or [*3]
b) care and maintenance[*2] or [*3]
c) special care when sailing in cold climate[*2] or [*3]

3.7) describe portable and mobile extinguishing systems
1) portable extinguishers
2) semi-portable mobile extinguishers
3) portable foam systems
4) fire blankets

Demonstrate:
a) how portable extinguishers work[*1] & [*3]
b) how item 2, 3 & 4 of subsection 3.7 work[*2] or [*3]
c) care and maintenance[*2] or [*3]
d) special care when sailing in cold climate[*2] or [*3]
e) salvage equipment, including fire fighting tugs, helicopters, fire boats[*3]

4) Training of crew members **3.25 hrs Lecture & 14 hrs Practical**

Insstructors will:

4.1) discuss crew familiarization and training
1) review chapter 4 of this standard pertaining to fire fighting
2) describe training of seafarers in fire fighting
3) describe composition and allocation of personnel for fire parties
4) describe fire control plans
5) describe organization and task of fire parties
a) in small fires
b) in extensive fires
6) explain how to prepare contingency plans
7) explain how to organize fire drills
8) describe strategies and tactics for controlling fires on ships at sea
9) describe strategies and tactics for controlling fires on ships in port
10) describe strategies and tactics for controlling fires on ships carrying dangerous cargoes
11) describe strategies and tactics for controlling fires on oil, chemical and gas tankers
12) explain control of fuel and electrical systems
13) how to monitor a situation before re-entering a compartment following a fire

Demonstrate[*]
a) table top exercise on organization and task of fire parties[*1]
b) table top exercise on preparing a contingency plan[*1]
c) table top exercise on preparing a fire drill[*1]
d) using the various scenarios developed from the table top exercises above, carry out real fire fighting exercises fighting small and extensive fires (including various techniques) using the ship mock-up[*1] & [*]

Note: One scenario must include a diesel main engine fire; another must include a fire fighting drill in cold climate.

4.2) discuss communication and coordination during fire fighting operations
1) demonstrate equipment used on board – reminder[*2]
2) demonstrate the limitations of communication equipment[*2]
3) review procedures for coordinating with shore-based firefighters
4) using the ship mock-up, demonstrate various fire fighting exercises, which include coordination with shore-based firefighters[*]

4.3) explain ventilation
1) control of ventilation with regard to fire fighting
2) smoke extraction
3) demonstrate through fire fighting exercise[*]

5) Management and control of injured persons 1.5 hrs Lecture & 2 hrs Practical

Instructors will:

5.1) describe and demonstrate rescue equipment
1) carried on board vessels[*2] & [*3]
2) international medical guide for ships[*2]

5.2) describe main health hazards from fire

5.3) demonstrate first aid for burns (fire, chemical and electrical)[*2]

5.4) demonstrate resuscitation techniques, from CPR to the use of a automatic external defibrillator (AED)[*1]

6) Lesson learned 2 hrs Lecture

Instructors will:

6.1) discuss past and recent fire incidents
1) review transportation safety board inquiry reports
2) review international fire incidents
3) discuss lesson learned
4) conduct table top review of the experience of the trainees

6.2) discuss investigation and reporting
1) how to investigate a fire
2) how to compile a report and log it
3) how to report to the flag state or the local authority
4) how to report to the classification society

16.9 EVALUATION

The evaluation consists of two parts:

1) 25 multiple-choice questions covering the complete knowledge and competency of the course. Passing mark to obtain the TCMSS training certificate is 70%.

2) Practical assessment achieved during the course.
The following legend indicates which competency is part of the skill-based assessment:

[*1] This is part of the skill-based assessment, therefore every candidate must be able to demonstrate their competency.

[*2] Not a skill requirement but must be demonstrated by the instructor and/or at least one candidate, depending on the amount of equipment available.

For drills marked with a [*], every candidate must demonstrate during the course that he can act as a lead team member on at least one fire fighting drill.

17 REFRESHER TRAINING COURSE IN ADVANCED FIRE FIGHTING (REF-AFF)

17.1 GENERAL

1) this course meets the requirements of STCW Convention Chapter VI, Section A-VI/3, paragraph 5, including 2010 Manila amendments.

2) seafarers qualified in advanced fire fighting in accordance with STCW Convention Chapter VI, Section A-VI/3, paragraph 4 must, every five years, provide evidence of having maintained the required standard of competence to undertake the tasks, duties and responsibilities listed in column 1 of table A-VI/3.

17.2 EQUIPMENT REQUIREMENTS

1) a two-storey steel rectangular vessel mock-up measuring approximately 11m x 6m x 2.6m. The mock-up must:

   - have compartments such as cabins, corridors, open rooms, an electric switchboard room, an engine room with a grating floor, and connecting doors, s to expose participants in a realistic manner to shipboard fires; every room in the building must be readily accessible from the outside;
   - means to teach participants how to use escape ladders and hatchways and how to effectively cope with engine room fires;
   - an efficient communication system whereby commands from a command post can be relayed to participants at the emergency locations within the mock-up; and
   - Posters of escape routes.

2) a fire box with an open top and with its front divided into compartments, in which participants can light and extinguish three types of fire. Alternatively, participants can use:

   - steel trays approximately 1m x 1m x 0.3m high with a raised back plate;
   - an approved propane gas-fuelled fire simulator;

3) a steel or open concrete pit approximately 2.5m x 2.5m x 0.3m for simulating large oil fires (an approved propane gas-fuelled fire simulator may also be used);

4) means of simulating engine room bilge oil fires (an approved propane gas-fuelled fire simulator may also be used);

5) a complete firefighter's outfit for each participant (including protective clothing, coveralls, gloves, fire boots, helmet, and waterproof clothing);

6) steel trays for containing fires or an approved propane gas-fuelled fire simulator;

7) one smoke generator (smoke bomb can be used);

8) two fire hydrants with two outlets each, with keys and bars to operate the water supply;

9) enough fuel (wood, diesel fuel, lubricating oil, etc.) for the fire trays (enough gas if using an approved propane gas-fuelled fire simulator);

10) six approved nozzles of various types;

11) enough hoses and water pressure to supply at least two 38 mm nozzles at each live fire location (minimum two locations);

12) equipment for generating and applying high/medium/low expansion foam, and foam compound;

13) one International shore connection;

14) a set of self-contained breathing apparatus (SCBA), complete with spare cylinders, spare parts and maintenance tools for 100 % of the participants, one set for use by the instructors and for persons with beard refer policy as per subsection 1.11;

15) facilities and equipment for cleaning, inspecting, refilling and caring for SCBA after use (or a memorandum of understanding with an approved facility);

16) various types of portable extinguishers (dry chemical, CO_2, water and foam) in sufficient number for every participant's practical demonstration;

17) two life lines (36 meters long) with snap hooks;

18) dummies, for search and rescue procedures;

19) different types of detectors used on board ships;

20) one first aid kit;

21) one hand operated resuscitator, air and oxygen type;

22) one fully automatic resuscitator.

17.3 DURATION

A minimum of 15 hours

17.4 PRE-REQUISITE AND MINIMUM AGE

1) a person must be at least 16 years of age to take the REF-AFF course.

2) STCW code table A-VI/3 regarding advanced fire fighting may require a fit test before taking the course. For further details please contact the recognized institution;

3) a person must hold a training certificate in Advanced Fire Fighting (or equivalent as per subsection 2.2 of chapter 2 of this standard) before taking the Refresher training in Advanced Fire Fighting (REF-AFF) course.

17.5 INSTRUCTOR QUALIFICATIONS

1) Teachers and Instructors must be qualified in the tasks they teach and be appropriately trained in instructional techniques and training methods as set out in section A-I/6 of Part A of the 2010 STCW Code;

2) In the case of a specialized marine training course, the main course instructor, in addition to holding qualifications for teaching, must have received appropriate training and hold a valid TC instructor approval letter.

Note: If the course is under the supervision of more than one instructor, the assistant instructors must hold the qualifications required by subsection 1.6 of this TP.

17.6 GOALS

This refresher training course is designed to comply with the regulations and to refresh the seafarers' skills in basic emergency duties through demonstrations and practical drills and exercises.

17.7 OUTLINE

SUBJECT AREA	HOURS	
	LECTURE	PRACTICAL
1) Introduction and safety 1) Introduction, safety and principles	0.5 hr	
2) Fire cause and prevention 1) Review of fire theory 2) Fire prevention – quick reminder 3) Fire fighting gear – demonstrate 4) Regulatory requirements for gear and outfits	1 hr	0.5 hr
3) Fire fighting systems 1) Structural fire protection – brief overview 2) Explain various types of vessel main fire fighting systems – demonstrate 3) Dangers of using water for fire fighting 4) Inspection of the fire mains, including hydrants, hoses and nozzles 5) Fire detection equipment – demonstrate 6) Fixed fire extinguishing systems – demonstrate 7) Portable and mobile extinguishing systems – demonstrate	1 hr	2 hrs
4) Training of crew members 1) Crew familiarization and training – quick reminder 2) Communication and coordination during fire fighting operations 3) Ventilation – reminder	1 hr	5.5 hrs

5) Management and control of injured persons 1) Rescue equipment	0.5 hr	2 hrs
6) Lesson learned 1) Past and recent fire incidents – review 2) Investigation and reporting – reminder	0.5 hr	
7) Evaluation	0.5 hr	Within the course hours
TOTAL	**5 hrs**	**10 hrs**
	15 hrs	

17.8 SYLLABUS

Legend for practical demonstrations	
*	This may also be achieved by using an approved propane gas-fuelled fire simulator.
*1	This is part of the skill-based assessment, therefore every candidate must be able to demonstrate their competency.
*2	Not a skill requirement but must be demonstrated by the instructor and/or at least one candidate, depending on the amount of equipment available.
*3	Knowledge may be covered using a video or an audio visual presentation

1) Introduction and safety **0.5 hr Lecture**

Instructors will:

1.1) give an introduction, present firefighting safety and survival principles
- 1) list the main aim of the course
- 2) list the safety rules laid down which must be adhered to during the course
- 3) list the principles of survival in relation to fire

2) Fire cause and prevention **1 hr Lecture & 0.5 hr Practical**

Instructors will:

2.1) review fire theory
- 1) fire tetrahedron
- 2) classes of fires
- 3) stages of fire development
- 4) methods of heat transfer
- 5) products of combustion
- 6) extinguishing principles
- 7) extinguishing agents and techniques
- 8) properties of flammable materials
- 9) dry distillation

Note: Instructors may use a video to illustrate the above.

2.2) quickly review fire prevention
- 1) prevention measures relevant to vessel operations

2) fire safety procedures
3) storage of flammable stores
4) dry-docking procedures

2.3) describe fire fighting gear and demonstrate how to:
1) prepare gear so it is ready for use[*2]
2) put on the complete fireman's outfit in a timely manner[*1]
3) use the lifeline for signalling[*2] or [*3]
4) use a fire blanket[*2]
5) properly use a fire axe[*2] or [*3]

Note: The instructor can spread out these demonstrations during drills

2.4) explain regulatory requirements for gear and outfits
1) changes to SOLAS and the Canadian regulations
2) changes in special requirements for various type of vessels, including oil tankers, chemical and gas carriers, and passenger vessels

3) Fire fighting systems **1 hr Lecture & 2 hrs Practical**

Instructors will:

3.1) give a brief overview of structural fire protection
1) changes to SOLAS and the Canadian regulations

3.2) explain various types of vessel main fire fighting systems – demonstrate:
1) how it works[*2] or [*3]
2) care and maintenance[*2] or [*3]
3) special care when sailing in cold climate[*2] or [*3]

3.3) describe dangers of using water for fire fighting
1) general principle
2) precaution when in cold climate
3) demonstrate what may go wrong[*3]

3.4) describe inspecting the fire mains, including hydrants, hoses and nozzles
1) how[*2] or [*3]
2) care and maintenance[*2] or [*3]
3) care when sailing in cold climate[*2] or [*3]

3.5) explain fire detection equipment and demonstrate:
1) how it works[*2] or [*3]
2) care and maintenance[*2] or [*3]
3) special care when sailing in cold climate[*2] or [*3]

3.6) explain fixed fire extinguishing systems and demonstrate:
1) how they work[*2] or [*3]
2) care and maintenance[*2] or [*3]
3) special care when sailing in cold climate[*2] or [*3]

3.7) explain portable and mobile extinguishing systems and demonstrate:
1) how they work[*2] & [*3]
2) care and maintenance[*2] or [*3]
3) special care when sailing in cold climate[*2] or [*3]

4) salvage equipment, including fire fighting tugs, helicopters, fire boats[*3]

4) Training of crew members 1 hr Lecture & 5.5 hrs Practical

Instructors will:

4.1) give a quick review of crew familiarization and training
1) chapter 4 of this standard pertaining to fire fighting
2) training of seafarers in fire fighting
3) composition and allocation of personnel for fire parties
4) fire control plans
5) organization and task of fire parties
a) small fires
b) in extensive fires
6) how to prepare contingency plans
7) how to organize fire drills
8) strategies and tactics for controlling fires on ships at sea
9) strategies and tactics for controlling fires on ships in port
10) strategies and tactics for controlling fires on ships carrying dangerous cargoes
11) strategies and tactics for controlling fires on oil, chemical and gas tankers
12) control of fuel and electrical systems
13) how to monitor the situation before re-entering into a compartment following a fire

Demonstrate:
a) table top exercise on organization and task of fire parties[*1]
b) table top exercise on preparing a contingency plan[*1]
c) table top exercise on preparing a fire drill[*1]
d) using various scenarios developed from table top exercises or other classes, carry out real fire fighting exercises fighting small and extensive fires (including various techniques) using the ship mock-up[*1] & [*]

Note: One scenario must include a diesel main engine fire; another must include a fire fighting drill in cold climate.

4.2) describe communication and coordination during fire fighting operations
1) demonstrate equipment used on board – reminder[*2]
2) demonstrate the limitations of communication equipment[*2]
3) review procedures for coordinating with shore-based firefighters
4) using the ship mock-up, demonstrate various fire fighting exercises, which include coordinating with shore-based firefighters[*]

4.3) briefly review ventilation
1) control of ventilation with regard to fire fighting
2) smoke extraction
3) demonstrate through fire fighting exercise[*]

5) Management and control of injured persons 0.5 hr Lecture & 2 hrs Practical

Instructors will:

5.1) describe rescue equipment:
1) how rescue equipment is carried on board vessels[*2] & [*3]

2) the international medical guide for ships[*2]

5.2) describe main health hazards from fire

5.3) describe first aid for burns (fire, chemical and electrical)[*2]

5.4) demonstrate resuscitation techniques, from CPR to the use of a automatic external defibrillator (AED)[*1]

6) Lesson learned **0.5 hr Lecture**

Instructors will:

6.1) review past and recent fire incidents

6.2) review investigation and reporting – reminder

17.9 EVALUATION

The evaluation consists of two parts:

1) 25 multiple-choice questions covering the complete knowledge and competency of the course. Passing mark to obtain the TCMSS training certificate is 70%.

2) practical assessment achieved during the course.
The following legend indicates which competency is part of the skill-based assessment:

[*1] this is part of the skill-based assessment, therefore every candidate must be able to demonstrate their competency.

[*2] not a skill requirement but must be demonstrated by the instructor and/or at least one candidate, depending on the amount of equipment available.

For drills marked with a [*], every candidate must demonstrate during the course that he can act as a lead team member on at least one fire fighting drill.

18 REFRESHER TRAINING COURSE IN STCW BASIC SAFETY AND TO PROFICIENCY IN SURVIVAL CRAFT AND RESCUE BOATS OTHER THAN FAST RESCUE BOATS (REF-STCW BS + PSC)

18.1 GENERAL

This course meets the requirements of:

1) STCW Convention chapter VI, Section A-VI/1, paragraph 3, including 2010 Manila amendments. Seafarers qualified in accordance with paragraph 2 in basic training must, every five years, provide evidence of having maintained the required standard of competence to undertake the tasks, duties and responsibilities listed in column 1 of tables A-VI/1-1 and A-VI/1-2 of the Convention; and

2) STCW Convention chapter VI, Section A-VI/2, paragraph 5, including 2010 Manila amendments. Seafarers qualified in accordance with paragraph 4 in survival craft and rescue boats other than fast rescue boats must, every five years, provide evidence of having maintained the required standard of competence to undertake the tasks, duties and responsibilities listed in column 1 of table A-VI/2-1 of the Convention.

18.2 EQUIPMENT REQUIREMENTS

1) a SOLAS approved and equipped lifeboat, which meet all LSA Code requirements for cargo vessels. The lifeboat must be fitted under davits, allowing direct launching into the open water. The lifeboat release and retrieval system must comply with the new IMO resolution MSC 320 (89). **Note:** The lifeboat does need to be approved for use at sea, but must be a training model similar to those found on SOLAS cargo vessels;
Or
equipment as mentioned under subsection 1.10 of section 1, with conditions as listed under subsection 3.4;

2) one approved rescue boat with equipment and engine (can be replaced by an approved lifeboat which meets the requirements of an approved rescue boat), sited to allow launching into the open water. The rescue boat and the release and retrieval system must meet the functional requirement as stated in SOLAS and comply with LSA Code requirements. **Note:** The boat does not need to be approved for use at sea, but must be a training model of those found on SOLAS cargo vessels);

3) two SOLAS approved inflatable liferafts (minimum 12 persons) with equipment that meet LSA Code requirements for cargo vessels, one to be fitted with an approved davit while the other may be stowed in a float free stowage and be safely secured with a hydrostatic release. **Note:** The davit does not need to be approved for use at sea, but must be a training model of those found on SOLAS cargo vessels);

4) one Ovatek or other approved brand rigid hull liferaft (minimum capacity of 4 persons) with equipment (can be replaced by an audio-visual presentation);

5) one SOLAS approved lifejacket for each participant including three inflatable lifejackets;

6) a variety of immersion suits suitable for 100% of the participants, including at least two SOLAS approved anti-exposure work suits. **Note:** Schools must introduce a policy in their quality management system stating that at registration they will advise candidates with special needs that they may need to bring their own gear;

7) two approved lifebuoys, one with a line and the other with an approved light and buoyant smoke signal;

8) one of each: rescue sling and rescue net;

9) one re-boarding device;

10) one line throwing device that can be demonstrated each course;

11) a variety of hand flares, parachute rockets and day smoke signals;

12) two portable 2-way radiotelephones approved for use in survival craft or a GMDSS radio, or other radios that meet the functional equivalency;

13) paper or PDF copies for the candidates to review, of:

   a) TP 14335 – Winter Navigation on the River and Gulf of St. Lawrence,

   b) Ice Navigation in Canadian Waters, 2012 edition,

   c) relevant cases of the Transportation Safety Board (TSB), from previous accidents involving passenger-carrying vessels,

   d) International Life-Saving Appliance Code (LSA Code),

   e) IMO Guidelines for Evaluation and Replacement of Lifeboat Release and Retrieval systems, MSC.1/circ.1392,

   f) copy of the International Aeronautical and Maritime Search and Rescue Manual (IAMSAR, Vol. III),

14) one lifeboat embarkation ladder;

15) one personal locator beacon (PLB);

16) a life-size dummy;

17) a first aid kit;

18) resuscitation kit with oxygen/suction unit;

19) access to open water or to pool facilities suitable for teaching and demonstrating the use of the equipment. The facility must have a platform so candidates can demonstrate entering water from a height.

20) a two-storey steel rectangular vessel mock-up measuring approximately 11m x 6m x 2.6m. The mock-up must have:

- compartments such as cabins, corridors, open rooms, an electric switchboard room, an engine room with a grating floor, and connecting doors, so as to expose

participants in a realistic manner to shipboard fires; every room in the building must be readily accessible from the outside;

- means to teach participants how to use escape ladders and hatchways and how to effectively cope with engine room fires;
- an efficient communication system whereby commands from a command post can be relayed to participants at the emergency locations within the mock-up;
- Posters of escape routes.

21) a fire box with an open top and with its front divided into compartments, in which participants can light and extinguish three types of fire. Alternatively, they can use:

- steel trays approximately 1m x 1m x 0.3m high with a raised back plate
- (an approved propane gas-fuelled fire simulator;

22) a steel or open concrete pit approximately 2.5m x 2.5m x 0.3m for simulating large oil fires (an approved propane gas-fuelled fire simulator may also be used);

23) means of simulating engine room bilge oil fires (an approved propane gas-fuelled fire simulator may also be used);

24) a complete firefighter's outfit for each participant (including protective clothing, coveralls, gloves, fire boots, helmet, and waterproof clothing);

25) steel trays for containing fires or an approved propane gas-fuelled fire simulator;

26) one smoke generator (smoke bomb can be used);

27) two fire hydrants with two outlets each, with keys and bars to operate the water supply;

28) enough fuel (wood, diesel fuel, lubricating oil, etc.) for the fire trays (enough gas if using an approved propane gas-fuelled fire simulator);

29) six approved nozzles of various types;

30) enough hoses and water pressure to supply at least two 38 mm nozzles at each live fire location (minimum two locations);

31) equipment for generating and applying high/medium/low expansion foam, and foam compound;

32) one international shore connection;

33) a set of self-contained breathing apparatus (SCBA), complete with spare cylinders, spare parts and maintenance tools for 100 % of the participants, one set for use by the instructors and for persons with beard refer policy as per subsection 1.11;

34) facilities and equipment for cleaning, inspecting, refilling and caring for SCBA after use (or a memorandum of understanding with an approved facility);

35) various types of portable extinguishers (dry chemical, CO_2, water and foam) in sufficient number for every participant's practical demonstration;

36) two life lines (36 meters long) with snap hooks;

37) dummies, for search and rescue procedures.

18.3 DURATION

A minimum of 25 hours

18.4 PRE-REQUESITE AND MINIMUM AGE

1) a person must be at least 16 years of age before taking this REF-STCW BS + PSC course;

2) STCW code table A-VI/1-2 regarding fire prevention and fire fighting may require a fit test before joining the courses. For further details please contact the recognized institution;

3) a person must hold a training certificate in STCW Basic Safety and Proficiency in Survival craft and Rescue Boats other than Fast Rescue Boats (or equivalent as per subsection 2.2 of chapter 2 of this standard) before taking this REF-STCW BS + PSC course.

18.5 INSTRUCTOR QUALIFICATIONS

1) Teachers and Instructors must be qualified in the tasks they teach and be appropriately trained in instructional techniques and training methods as set out in section A-I/6 of Part A of the 2010 STCW Code;

2) In the case of a specialized marine training course, the main course instructor, in addition to holding qualifications for teaching, must have received appropriate training and hold a valid TC instructor approval letter.

Note: If the course is under the supervision of more than one instructor, the assistant instructors must hold the qualifications required by subsection 1.6 of this TP.

18.6 GOALS

1) this refresher training course is designed to comply with the regulations and to refresh the seafarers' skills in basic emergency duties through demonstrations and practical drills and exercises;

2) this training will allow seafarers to renew both training (STCW BS and PSC) for a period not exceeding five years.

18.7 OUTLINE

SUBJECT AREA	HOURS		
	LECTURE	PRACTICAL	SIMULATION
1) Introduction and safety 1) Introduction 2) Principles of safety 3) Overview of various documents	0.75 hr		
2) Hazards and emergencies 1) Crew expertise – reminder	0.25 hr		
3) Lifesaving appliances and abandonment 1) Lifejackets 2) Immersion suits 3) Anti-exposure work suits 4) Thermal protective aids 5) Lifebuoys and line throwing devices 6) Personal survival 7) Action to take after abandoning a vessel in a survival craft		3 hrs	
4) Lifeboats 1) General 2) Free-fall lifeboat davits 3) Various scenarios of lifeboat drills, including drills in launching and recovering boats*	0.5 hr or 0.25 hrs	2.5 hrs or 0.5 hrs	0 hr or 2.25 hrs
5) Rescue boats 1) General – reminder 2) Various scenarios of rescue boat drills, including drills in launching and recovering boats*	0.5 hr or 0.25 hr	2.5 hrs or 0.5 hr	0 hr or 2.25 hrs
6) Liferafts, rigid hull liferafts and marine evacuation systems 1) Liferafts 2) Handling of liferafts in rough weather – reminder 3) Float-free arrangements 4) Rigid hull liferafts and equipment 5) Marine evacuation systems	0.5 hr	2.5 hrs	
7) Survival, first aid and rescue 1) Initial actions – reminder 2) Actions to increase chances of survival and rescue	0.5 hr	2 hrs	

3) Fist aid – reminder 4) Personal locator beacons (PLB) – reminder 5) Recognition and operation of signalling devices – reminder 6) GMDSS portable radios – reminder 7) Pyrotechnics 8) Line throwing devices 9) Rescue equipment			
8) Helicopter assistance 1) Communicating with the helicopter 2) Helicopter pick-up[*2] or [*3]	0.25 hr	0.25 hr	
9) Concept and application of the fire triangle to fire and explosion 1) Conditions for fires – reminder 2) Properties of flammable materials – reminder	1 hr		
10) Selection of fire fighting appliances and equipment 1) Fireman's outfit 2) Fire lines 3) Fire blankets 4) Breathing apparatus 5) Small fires 6) Extensive fires		7.5 hrs	
11) Evaluation	0.5 hr	Within the course hours	Within the course hours
TOTAL	**4.75 hrs or 4.25 hrs**	**20.25 hrs or 16.25 hrs**	**0 hrs or 4.5 hrs**
	25 hrs		

18.8 SYLLABUS

Legend for practical demonstrations	
*	This may also be achieved by using an approved propane gas-fuelled fire simulator.
*1	This is part of the skill-based assessment, therefore every candidate must be able to demonstrate their competency.
*1a	This is part of the skill based assessment. If simulator training conforming to section 3.4 is used in the course, every candidate must be able to demonstrate their competency using the simulator.
*2	Not a skill requirement but must be demonstrated by the instructor and/or at least one candidate, depending on the amount of equipment available.
*2a	Not a skill requirement. If simulator training conforming to section 3.4 is used in the course, the demonstration may be conducted using the simulator.
*3	Knowledge may be covered using a video or an audio visual presentation

1) Introduction and safety **0.75 hr Lecture**

Instructors will:

1.1) give an introduction
   1) learning objectives
   2) course syllabus
   3) who needs to follow this training course (for certification or crewing purposes and due to the new STCW-F Convention)

1.2) present principles of safety
   1) Always follow instructor safety rules
   2) Follow all safety precautions when handling actual equipment, such as pyrotechnics
   3) Always be careful, even though the incidents are simulated

1.3) give an overview of various documents

2) Hazards and emergencies **0.25 hr Lecture**

Instructors will:

2.1) review crew expertise – reminder
   1) explain that the effectiveness of the life-saving equipment depends on the expertise of the crew
   2) review initial on-board familiarization, SOLAS and Canadian regulations and chapter 4 of this TP

3) Lifesaving appliances and abandonment **3 hrs Practical**

Instructors will:

3.1) discuss lifejackets and demonstrate:
   1) how to properly put on a lifejacket and use attachments[*1]
   2) how to properly put on a lifejacket and use attachments in total darkness[*1]
   3) how to properly care for and stow lifejackets[*2]
   4) how to enter water from a height and swim while wearing a lifejacket[*1]
   5) how to inflate inflatable lifejackets[*2]
   6) how to properly use a PFD[*2]

3.2) discuss immersion suits and demonstrate:
   1) how to properly put on an immersion suit with necessary speed, and use attachments[*1]
   2) how to properly put on an immersion suit in darkness with necessary speed, and use attachments[*1]
   3) how to enter water from a height and swim while wearing an immersion suit[*1]
   4) how to properly care for and stow an immersion suit[*2]

3.3) discuss anti-exposure work suits and demonstrate:
   1) how to properly put on an anti-exposure work suit with necessary speed, and use attachments[*2]

3.4) discuss thermal protective aids and demonstrate:
   1) how to properly use TPA[*2]

2) how to properly put a TPA on an unconscious casualty [*2] & [*]

3.5) discuss lifebuoys and line throwing devices

Demonstrate

1) how to correctly use a lifebuoy (throwing, entering and securing in it while in the water and waiting for rescue)[*2]
2) how to correctly use a line throwing device[*2] (as per policy in section 1.11)
3) how to use lifebuoys with self-igniting lights[*2]

3.6) discuss personal survival

1) how to keep afloat without a lifejacket, immersion suit and/or anti-exposure suit (without any aid)

Demonstrate

a) how to stay together in the water[*2]
b) how to take the Heat Escape Lessening Posture (HELP)[*1]
c) how to swim as a group in a chain[*1] & [*]
d) how to form a huddle in the water[*1] & [*]
e) how to use rescue blankets[*2]

3.7) What to do after abandoning a vessel in a survival craft[*2] or [*3]

1) What to do after abandoning a vessel in a survival craft
2) What to do after leaving the vessel in an inflatable or rigid hull liferaft
3) What to do after leaving the vessel in winter and/or ice covered water
4) What to do after leaving the vessel in very warm weather
5) What to do after leaving the vessel if lifeboat engine is not starting (how to use oars)
6) What to do when rescue is far away

4) Lifeboats **0.5 hr Lecture & 2.5 hrs Practical**
(0.25 hr Lecture & 0.5 hr Practical & 2.25 hrs Simulation if simulation is being used)

Instructors will:

4.1) give a general overview

1) precautions to take during winter or in presence of ice
2) the importance of following manufacturer's recommended maintenance guidelines
3) lifeboat davits maintenance
4) how to launch and handle lifeboats when in ice[*2a]
5) how to launch lifeboats in rough sea[*2a]
6) how to clear the ship's side[*2a]
7) how to recover lifeboats during drills[*2a]
8) lifeboat engine and accessories[*2a]
9) lifeboat water spray system[*2a]
10) lifeboat self-contained air support system[*2a]

4.2) describe free-fall lifeboat davits

1) demonstrate free-fall launching[*2] or[*3]
2) explain key points when recovering free-fall lifeboat after a drill – demonstrate[*2] or [*3]
3) explain the importance of following manufacturer's recommended maintenance guidelines

4.3) various scenarios of lifeboat drills, including drills in launching and recovering boats[*]

1) act as an efficient member of a launching/recovering crew[*1/*1a]
2) how to get into a lifeboat from ship[*1]
3) how to get into a lifeboat from the water[*1]

4) how to correctly secure yourself in it[*1]
5) how to bring an injured or exhausted survivor on board a lifeboat[*2]
6) how to correctly secure an injured crew member[*2]
7) how to correctly launch a lifeboat that is securely fasted under davits, and clear the ship's side quickly [*2/*2a] &[*]
8) how to start and operate an inboard engine fitted in a enclosed lifeboat[*2/*2a]
9) how to steer a boat by compass[*2/*2a]
10) how to act as coxswain in handling a boat under power[*1]
11) how to stream a sea anchor[*2/*2a]
12) how to correctly use all equipment[*2]
13) how to properly care for and stow lifeboat and equipment [*2]
14) safely recover the boats[*2/*2a]
15) how to use proper techniques for beaching [*2] or [*3]

Note: Instructor must demonstrate various scenarios, including at least one in cold climate (may simulate cold climate scenario).

5) Rescue boats 0.5 hr Lecture & 2.5 hrs Practical
(0.25 hr Lecture & 0.5 hr Practical & 2.25 hrs Simulation if simulator is being used)

Instructors will:

5.1) give a general overview – reminder
1) precautions to take during winter or in presence of ice
2) the importance of following manufacturer's recommended maintenance guidelines
3) the importance of following per manufacturer's recommended maintenance guidelines for davits
4) rescue boat outboard engines
5) how to launch rescue boats in rough sea[*2a]
6) how to recover rescue boats[*2a]
7) how to marshal and tow liferafts and rescue survivors from the sea[*2a]

5.2) enact various scenarios of rescue boat drills, including drills in launching and recovering boats[*]
1) act as an efficient member of a launching/recovery crew[*1/*1a] &[*]
2) how to correctly launch a rescue boat and clear the ship's side quickly[*2/*2a] &[*]
3) how to correctly use all equipment[*2]
4) how to properly care for and stow rescue boat[*2]
5) how to steer the rescue boat by compass[*2/*2a]
6) how to act as coxswain in handling rescue boats[*1/*1a]
7) how to pick up a survivor from the water[*1] &[*1a]
8) how to correctly get back on board, in full survival gear[*1]
9) how to correctly secure an injured crew member[*2]
10) safely bring the rescue boat alongside[*2/*2a]
11) how to safely transfer passenger/survivor[*2]
12) how to properly marshal liferafts[*2/*2a]
13) how to properly towing liferafts[*2/*2a]
14) how to use proper techniques for beaching[*2] or [*3]

6) Liferafts, rigid hull liferafts and marine evacuation systems 0.5 hr Lecture & 2.5 hrs Practical

Instructors will:

6.1) discuss liferafts
1) demonstrate the proper stowage and releasing mechanism[*2] or [*3]
2) explain the importance of following manufacturer's recommended maintenance guidelines
3) describe special care in cold climate

Demonstrate
a) how to correctly launch an inflatable liferaft[*2]
b) how to correctly launch a davit launched liferaft[*2]
c) how to correctly board a liferaft from the water, while wearing a lifejacket[*1]
d) how to correctly board a liferaft from the water, while wearing a survival suit[*1]
e) how to use the various gear and equipment in the survival pack[*2]
f) how to right an inverted liferaft while wearing a lifejacket[*1]
g) how to manoeuvre a liferaft and set the anchor to reduce drift[*2]
h) how to retrieve a man overboard[*1]
i) how to throw the rescue quoit and line to a person in the water[*2]
j) how to care for and stow liferafts[*2]

6.2) review how to handle liferafts in rough weather – reminder

6.3) describe float-free arrangements
1) demonstrate characteristics and operation of the hydrostatic release units, including limitation and expiry date[*2] or [*3]
2) demonstrate installation, including best position of the hydrostatic release[*2]

6.4) describe rigid hull liferafts and equipment
1) basic features of this type of liferaft[*2] or [*3]
2) proper stowage and releasing mechanism[*2] or [*3]
3) the importance of following manufacturer's recommended maintenance guidelines
4) special care when launching in presence of ice

Demonstrate
a) how and when to correctly launch a rigid hull liferaft from the ship's deck[*2 or *3]
b) how to use the survival pack [*2 or *3]
c) how to board a rigid hull liferaft from the water, with lifejacket and then with survival suits[*2 or *3]
d) how to manoeuvre the rigid hull liferaft and set the anchor to reduce drift[*2 or *3]
e) how to retrieve a man overboard[*2 or *3]
f) how to dewater a rigid hull liferaft[*2 or *3]
g) how to care for and stow a rigid hull liferaft[*2 or *3]

6.5) discuss marine evacuation systems
1) explain the importance of following manufacturer's recommended maintenance guidelines
2) describe special care when launching in presence of ice
3) demonstrate main types of marine evacuation systems[*3]

7) Survival, first aid and rescue **0.5 hr Lecture & 2 hrs Practical**

Instructors will:

7.1) review initial actions – reminder
1) take survivors in water on board
2) give all persons on board anti-seasickness tablets
3) how to secure survival craft together with the painter
4) how to use sea anchors
5) list immediate actions as:
a) stream the sea anchor
b) set an EPRIB to function
c) give anti-seasickness pills to all persons on board
d) bail the craft dry
e) treat the injured
f) inflate the liferaft floor in cold conditions
g) get radio equipment ready
h) post lookouts
6) explain the need to ventilate a liferaft after it has been inflated before closing the openings
7) explain that instructions on how to survive are in liferafts
8) explain how to apportion food and water

7.2) discuss actions to increase chances of survival and rescue
1) review of IMO MSC.1/Circ.1185/Rev 1(or latest version) on survival in cold water

7.3) review first aid – reminder
1) demonstrate on a life-size dummy how to apply mouth-to-mouth or mouth-to-nose respiration[*2]
2) describe/demonstrate the signs of cardiac arrest[*2]
3) demonstrate closed-chest cardiac compression on the dummy[*2]
4) demonstrate how two people combine cardiac compression and mouth-to-mouth respiration[*2]
5) demonstrate the recovery position for an unconscious person[*2]
6) demonstrate how to use the resuscitation kit with oxygen/suction unit[*2] or [*3]
7) demonstrate the content of the first aid kit[*2]
8) demonstrate how to correctly prepare a casualty in basket type stretcher, ready for evacuation[*2]

7.4) review personal locator beacons (PLB) – reminder
1) demonstrate how it works[*2] or [*3]

7.5) review how to recognize and operate signalling devices – reminder

7.6) review GMDSS portable radios – reminder
1) demonstrate throughout drills proper communication using a VHF[*1]

7.7) describe pyrotechnics
1) demonstrate main types[*2]

7.8) describe line throwing devices
1) demonstrate how to correctly use a line throwing device[*2] (include a live demonstration as per policy in section 1.11)

7.9) describe rescue equipment

1) demonstrate how to use a rescue sling[*1], rescue basket*[3] and rescue net*[2]

8) Helicopter assistance 0.25 hr Lecture & 0.25 hr Practical

Instructors will:

8.1) discuss communicating with the helicopter
1) demonstrate signals used[*2]
2) how to communicate with the helicopter through a shore station if the appropriate equipment is available

8.2) describe helicopter pick-up[*2] or [*3]
1) demonstrate methods of pick-up by harness, stretcher and rescue net
2) demonstrate hand and arm signals used for safe lifting
3) describe how the helicopter crew assists in pick-up
4) stress importance of obeying the helicopter pilot's instructions

9) Concept and application of the fire triangle to fire and explosion 1 hr Lecture

Instructors will:

9.1) review conditions for fire – reminder
1) list conditions required for fire to occur as:
a) the presence of material which acts as a fuel
b) a source of ignition, e.g. chemical, biological or physical
c) the presence of oxygen
2) sketch how these three conditions can be represented as a triangle (the fire triangle) – concept to prevent and extinguish fires
3) sketch how adding a fourth condition, the "chain reaction", "fire tetrahedron", which represents a continuously burning fire

9.2) review properties of flammable materials
1) define:
a) flammability
b) ignition point
c) burning temperature
d) burning speed
e) thermal value
f) lower flammable limit (LFL)
g) upper flammable limit (UFL)
h) flammable range
i) flashpoint
j) auto-ignition
2) give one example of how static electricity can occur
3) explain reactivity
4) explain ignition sources

10) Selection of fire fighting appliances and equipment 7.5 hrs Practical

Instructors will:

10.1) describe fireman's outfit and demonstrate how to put on the complete gear in a timely manner[*1]
Note: This demonstration can be spread out during drills

10.2) discuss fire lines
1) Demonstrate how to use them[*2]
2) Explain and demonstrate how to use the lifeline for signalling[*2] or [*3]

10.3) describe a fire blanket and demonstrate how to use it[*2]

10.4) describe and demonstrate a breathing apparatus
1) demonstrate the correct way to fit the face mask of a SCBA and to check that it is airtight[*1]
2) list the checks that must be made on a SCBA before use and after it is strapped on
3) demonstrate the correct breathing technique to give low air consumption for a particular exertion when using a SCBA[*1]
4) explain the reasons for not remaining in a toxic atmosphere until the SCBA air bottles are empty
5) explain why to read the pressure gauge at frequent intervals during use, and action to take when hearing the SCBA warning signal that air pressure is low
6) demonstrate how to check and use the compressed air operated breathing apparatus[*1]
7) demonstrate entering a small room using SCBA when the room is filled with non-toxic artificial smoke, using a lifeline as a signal line and take part in team exercise demonstrating communicating with other team members while wearing a SCBA[*2] &[*]
8) demonstrate how to search for persons (using dummies) in a smoke-filled space while wearing SCBA[*1]
9) demonstrate rescuing missing crewmember (using dummies), during real fire fighting conditions, using various scenarios which include a passenger vessel[*1] &[*]

10.5) discuss small fires
1) demonstrate the correct use of portable fire extinguishers suited, respectively, for the following types of fire[*, *2] or [*3]
   a) materials, e.g. wood
   b) oil
   c) grease
   d) plastics
   e) propane
   f) electrical
2) demonstrate the operational principle of each type of fire extinguisher found on board a cargo vessel[*2]
3) demonstrate how to extinguish small fires using a hose with water jet and spray nozzles and with foam applicator, in a smoke-filled space (mock-up)[*1] & [*]
4) demonstrate the use of various types of portable fire extinguishers on fires in a smoke-filled space while wearing a SCBA[*1] & [*]
5) demonstrate fire fighting techniques when dealing with a small fire, including a quick review of fire fighting techniques for mariners when dealing with small fires, using various scenarios (which mustl include at least one in cold weather and one on a passenger vessel)[*1] & [*] (planning, actions and communication should take concerned scenario into account, passenger vessel scenario to also cover rescuing passengers(dummies) and using the same mock up as passenger vessel areas)

10.6) discuss extensive fires

1) demonstrate how to extinguish extensive fires of various types, including an oil fire, using as appropriate[*1]:
   a) water (jet, spray and fog application)
   b) foams, including aqueous-film-forming type (AFFF)
   c) powder, dry and wet
   d) CO_2
2) demonstrate how to extinguish extensive fire when wearing a SCBA in a smoke-filled enclosed spaces (mock-up), including an accommodation room or simulated engine room, and using as appropriate water (jet, spray or fog), foam or powder[*1] & [*]
3) demonstrate a complete fire drill[*]
4) demonstrate fire fighting techniques when dealing with a extensive fire, as per various lectures done within this course, using various scenarios (which shall include at least one in cold weather and one on a passenger vessel)[*1] & [*] (planning, actions and communication should take concerned scenario into account, passenger vessel scenario to also cover rescuing passengers(dummies) and using the same mock up as passenger vessel areas)

18.9 EVALUATION

The evaluation consists of two parts:

1) 30 multiple-choice questions covering the complete knowledge and competency of both the STCW BS and PSC. For complete syllabus refer to Chapter 10 (Tables 1 and 2 only) and 12 of this Standard. Passing mark to obtain the TCMSS training certificate is 70%.

2) practical assessment achieved during the course.
   The following legend indicates which competency is part of the skill-based assessment:

   [*1] this is part of the skill-based assessment, therefore every candidate must be able to demonstrate their competency.

   [*2] not a skill requirement but must be demonstrated by the instructor and/or at least one candidate, depending on the amount of equipment available.

   [a] A numeral followed by the letter “a” indicates that simulation conforming to the requirements in section 3.4 may be used for skills-based assessment.

   For drills marked with a [*], every candidate must demonstrate during the course that he can act as a lead team member on at least on fire fighting drill, one survival drill and one rescue boat/liferaft demonstration.

19 REFRESHER TRAINING COURSE IN STCW BASIC SAFETY, TO PROFICIENCY IN SURVIVAL CRAFT AND RESCUE BOATS OTHER THAN FAST RESCUE BOATS, AND TO ADVANCED FIRE FIGHTING (REF-STCW BS + PSC + AFF)

19.1 GENERAL

This course meets the requirements of:

1) STCW Convention chapter VI, Section A-VI/1, paragraph 3, including 2010 Manila amendments. Seafarers qualified in accordance with paragraph 2 in basic training must, every five years, provide evidence of having maintained the required standard of competence to undertake the tasks, duties and responsibilities listed in column 1 of tables A-VI/1-1 and A-VI/1-2 of the Convention;

2) STCW Convention chapter VI, Section A-VI/2, paragraph 5, including 2010 Manila amendments. Seafarers qualified in accordance with paragraph 4 in survival craft and rescue boats other than fast rescue boats must, every five years, provide evidence of having maintained the required standard of competence to undertake the tasks, duties and responsibilities listed in column 1 of table A-VI/2-1 of the Convention; and

3) STCW Convention chapter VI, Section A-VI/3, paragraph 5, including 2010 Manila amendments. Seafarers qualified in accordance with paragraph 4 in advanced training in fire fighting must, every five years, provide evidence of having maintained the required standard of competence, to undertake the tasks, duties and responsibilities listed in column 1 of table A-VI/3.

19.2 EQUIPMENT REQUIREMENTS

1) a SOLAS approved and equipped lifeboat, that meets all LSA Code requirements for cargo vessels. The lifeboat must be fitted under davits, allowing direct launching into the open water. The lifeboat release and retrieval system must comply with the new IMO resolution MSC 320 (89). **Note:** The lifeboat does not need to be approved for use at sea, but it must be a training model similar to those found on SOLAS cargo vessels;
Or
equipment as mentioned under subsection 1.10 of section 1, with conditions as listed under subsection 3.4;

2) one approved rescue boat with equipment and engine (can be replaced by an approved lifeboat which meets the requirements of an approved rescue boat), sited to allow launching into the open water. The rescue boat and the release and retrieval system must meet the functional requirement as stated in SOLAS and comply with LSA Code requirements. **Note:** The boat does not need to be approved for use at sea, but must be a training model of those found on SOLAS cargo vessels;

3) two SOLAS approved inflatable liferafts (minimum 12 persons) with equipment that meet LSA Code requirements for cargo vessels, one to be fitted with an approved davit while the other may be stowed in a float free stowage and be safely secured with a

hydrostatic release. **Note:** The davit does not need to be approved for use at sea, but must be a training model of those found on SOLAS cargo vessels;

4) one Ovatek or other approved brand rigid hull liferaft (minimum capacity of 4 persons) with equipement (can be replaced by an audio-visual presentation);

5) one SOLAS approved lifejacket for each participant including three inflatable lifejackets;

6) a variety of immersion suits suitable for 100% of the participants, including at least two SOLAS approved anti-exposure work suits. **Note:** Schools must introduce a policy in their quality management system stating that at registration they will advise candidates with special needs that they may need to bring their own gear;

7) two approved lifebuoys, one with a line and the other with an approved light and buoyant smoke signal;

8) one of each: rescue sling and rescue net;

9) one re-boarding device;

10) one line throwing device that can be demonstrated each course;

11) a variety of hand flares, parachute rockets and day smoke signals;

12) two portable 2-way radiotelephones approved for use in survival craft or a GMDSS radio, or other radios that meet the functional equivalency;

13) paper or PDF copies for the candidates to review, of:

   a) TP 14335 – Winter Navigation on the River and Gulf of St. Lawrence,

   b) Ice Navigation in Canadian Waters, 2012 edition,

   c) relevant cases of the Transportation Safety Board (TSB), from previous accidents involving passenger-carrying vessels,

   d) International Life-Saving Appliance Code (LSA Code),

   e) IMO Guidelines for Evaluation and Replacement of Lifeboat Release and Retrieval systems, MSC.1/circ.1392,

   f) copy of the International Aeronautical and Maritime Search and Rescue Manual (IAMSAR, Vol. III),

   g) SOLAS Convention,

   h) BCH Code,

   i) IMDG Code (supplement only),

   j) IGC Code,

   k) IBC Code,

   l) International Medical Guide for Ships,

   m) Canadian regulations pertaining to fire prevention and training.

14) one lifeboat embarkation ladder;

15) one personal locator beacon (PLB);

16) a life-size dummy;

17) a first aid kit;

18) access to open water or to pool facilities suitable for teaching and demonstrating the use of the equipment. The facility must have a platform so candidates can demonstrate entering water from a height.

19) a two-storey steel rectangular vessel mock-up measuring approximately 11m x 6m x 2.6m. The mock-up must have:

- compartments such as cabins, corridors, open rooms, an electric switchboard room, an engine room with a grating floor, and connecting doors, so as to expose participants in a realistic manner to shipboard fires; every room in the building must be readily accessible from the outside;
- means to teach participants how to use escape ladders and hatchways and how to effectively cope with engine room fires;
- an efficient communication system whereby commands from a command post can be relayed to participants at the emergency locations within the mock-up; and
- Posters of escape routes;

20) a fire box with an open top and with its front divided into compartments, in which the participants can light and extinguish three types of fire. Alternatively, participants can use:

- steel trays approximately 1m x 1m x 0.3m high with a raised back plate;
- an approved propane gas-fuelled fire simulator.

21) a steel or open concrete pit approximately 2.5m x 2.5m x 0.3m for simulating large oil fires (an approved propane gas-fuelled fire simulator may also be used);

22) means of simulating engine room bilge oil fires (an approved propane gas-fuelled fire simulator may also be used);

23) a complete firefighter's outfit for each participant (including protective clothing, coveralls, gloves, fire boots, helmet, and waterproof clothing);

24) steel trays for containing fires (or approved propane gas-fuelled fire simulator);

25) one smoke generator (smoke bomb can be used);

26) two fire hydrants with two outlets each, with keys and bars to operate the water supply;

27) enough fuel (wood, diesel fuel, lubricating oil, etc.) for the fire trays (enough gas if using an approved propane gas-fuelled fire simulator);

28) six approved nozzles of various types;

29) enough hoses and water pressure to supply at least two 38 mm nozzles at each live fire location (minimum two locations);

30) equipment for generating and applying high/medium/low expansion foam, and foam compound;

31) one international shore connection;

32) a set of self-contained breathing apparatus (SCBA), complete with spare cylinders, spare parts and maintenance tools for 100 % of the participants, one set for use by the instructors and for persons with beard refer policy as per subsection 1.11;

33) facilities and equipment for cleaning, inspecting, refilling and caring for SCBA after use (or a memorandum of understanding with an approved facility);

34) various types of portable extinguishers (dry chemical, CO_2, water and foam) in sufficient number for every participant's practical demonstration;

35) two life lines (36 meters long) with snap hooks;

36) one hand operated resuscitator, air and oxygen type;

37) one fully automatic resuscitator;

19.3 DURATION

A minimum of 30.5 hours

19.4 PRE-REQUESITE AND MINIMUM AGE

1) a person must be at least 16 years of age before taking this REF-STCW BS + PSC + AFF course;

2) STCW code table A-VI/1-2 regarding fire prevention and fire fighting may require a fit test prior joining the courses. For further details please contact the recognized institution;

3) a person must hold a training certificate in STCW Basic Safety, Proficiency in Survival craft and Rescue Boats other than Fast Rescue Boats, and Advanced Fire Fighting (or equivalent as per subsection 2.2 of chapter 2 of this standard) before taking this REF-STCW BS + PSC + AFF course.

19.5 INSTRUCTOR QUALIFICATIONS

1) Teachers and Instructors must be qualified in the tasks they teach and be appropriately trained in instructional techniques and training methods as set out in section A-I/6 of Part A of the 2010 STCW Code;

2) In the case of a specialized marine training course, the main course instructor, in addition to holding qualifications for teaching, must have received appropriate training and hold a valid TC instructor approval letter.

3) **Note:** If the course is under the supervision of more than one instructor, the assistant instructors must hold the qualifications required by subsection 1.6 of this TP.

19.6 GOALS

1) this refresher training course is designed to comply with the regulations and to refresh the seafarers' skills in basic emergency duties through demonstrations and practical drills and exercises;

2) this training will allow seafarers to renew their STCW BS, PSC and AFF training for a period not exceeding five years.

19.7 OUTLINE

SUBJECT AREA	HOURS		
	LECTURE	PRACTICAL	SIMULATION
1) Introduction and safety 1) Introduction 2) Principles of safety 3) Overview of various documents	0.75 hr		
2) Hazards and emergencies 1) Crew expertise – reminder	0.25 hr		
3) Lifesaving appliances and abandonment 1) Lifejackets 2) Immersion suits 3) Anti-exposure work suits 4) Thermal protective aids 5) Lifebuoys and line throwing devices 6) Personal survival 7) Action to take after abandoning a vessel		3 hrs	
4) Lifeboats 1) General 2) Free-fall lifeboat davits 3) Various scenarios of lifeboat drills, including drills in launching and recovering boats*	0.5 hr or 0.25 hrs	2.5 hrs or 0.5 hrs	0 hrs or 2.25 hrs
5) Rescue boats 1) General – reminder 2) Various scenarios of rescue boat drills, including drills in launching and recovering rescue boats*	0.5 hr or 0.25 hrs	2.5 hrs or 0.5 hrs	0 hrs or 2.25 hrs

6) Liferafts, rigid hull liferafts and marine evacuation systems 1) Liferafts 2) Handling of liferafts in rough weather 3) Float-free arrangements 4) Rigid hull liferafts and equipment 5) Marine evacuation systems	0.5 hr	2.5 hrs	
7) Survival, first aid and rescue 1) Initial actions – reminder 2) Actions to increase chances of survival and rescue 3) Fist aid – reminder 4) Personal locator beacons (PLB) – reminder 5) Recognition and operation of signalling devices – reminder 6) GMDSS portable radios – reminder 7) Pyrotechnics 8) Line throwing devices 9) Rescue equipment	0.5 hr	2 hrs	
8) Helicopter assistance 1) Communicating with the helicopter 2) Helicopter pick-up[*2] or [*3]	0.25 hr	0.25 hr	
9) Fire cause and prevention 1) Review of fire theory 2) Fire prevention – quick reminder 3) Fire fighting gear 4) Regulatory requirements – outfits and gear	1 hr	0.5 hr	
10) Fire fighting systems 1) Structural fire protection – brief overview 2) Various types of vessel main fire fighting systems 3) Dangers of using water for fire fighting 4) Inspection of the fire mains, including hydrants, hoses and nozzles 5) Fire detection equipment 6) Fixed fire extinguishing systems 7) Portable and mobile extinguishing systems	1 hr	2 hrs	
11) Training of crew members 1) Crew familiarization and training – reminder 2) Communication and coordination during fire fighting operations 3) Ventilation – reminder	1 hr	5.5 hrs	

12) Management and control of injured persons 1) Rescue equipment	0.5 hr	2 hrs	
13) Lesson learned 1) Past and recent fire incidents – review 2) Investigation and reporting – reminder	0.5 hr		
14) Evaluation	0.5 hr	Within the course hours	Within the course hours
TOTAL	**7.75 hrs or 7.25 hrs**	**22.75 hrs or 18.75 hrs**	**0 hrs or 4.5 hrs**
	30.5 hrs		

19.8 SYLLABUS

Legend for practical demonstrations	
*	This may also be achieved by using an approved propane gas-fuelled fire simulator.
*1	This is part of the skill-based assessment, therefore every candidate must be able to demonstrate their competency.
*1a	This is part of the skill based assessment. If simulator training conforming to section 3.4 is used in the course, every candidate must be able to demonstrate their competency using the simulator.
*2	Not a skill requirement but must be demonstrated by the instructor and/or at least one candidate, depending on the amount of equipment available.
*2a	Not a skill requirement. If simulator training conforming to section 3.4 is used in the course, the demonstration may be conducted using the simulator.
*3	Knowledge may be covered using a video or an audio visual presentation

1) Introduction and safety **0.75 hr Lecture**

Instructors will:

1.1) give an introduction
1) learning objectives
2) course syllabus
3) who needs to follow this training course (for certification or crewing purposes and due to the new STCW-F Convention)

1.2) present principles of safety
1) Always follow instructor safety rules
2) Follow all safety precautions when handling actual equipment, such as pyrotechnics
3) Always be careful, even though the incidents are simulated

1.3) give an overview of changes to various documents that can affect MED trainings for BS, AFF and PSC

2) Hazards and emergencies **0.25 hr Lecture**

Instructors will:

2.1) review crew expertise – reminder
1) explain that the effectiveness of the life-saving equipment depends on the expertise of the crew
2) review initial on-board familiarization, SOLAS and Canadian regulations, and chapter 4 of this TP

3) Lifesaving appliances and abandonment **3 hrs Practical**

Instructors will

3.1) describe lifejackets and demonstrate:
1) how to properly put on a lifejacket and use attachments[*1]
2) how to properly put on a lifejacket and use attachments, in total darkness[*1]
3) how to care for and stow lifejackets[*2]
4) how to enter the water from a height and swimming while wearing a lifejacket[*1]
5) how to inflate inflatable lifejackets[*2]
6) how to properly use a PFD[*2]

3.2) describe immersion suits and demonstrate:
1) how to properly put on an immersion suit with necessary speed, and use attachments[*1]
2) how to properly put on an immersion suit in darkness with necessary speed, and use attachments[*1]
3) how to enter the water from a height and swimming while wearing an immersion suit[*1]
4) how to care for and stow an immersion suit[*2]

3.3) describe anti-exposure work suits and demonstrate:
1) how to properly put on an anti-exposure work suit with necessary speed, and use attachments[*2]

3.4) describe thermal protective aids and demonstrate:
1) how to properly use TPA[*2]
2) how to properly put on a TPA on an unconscious casualty[*2] & [*]

3.5) describe lifebuoys and line throwing devices and demonstrate:
1) how to correctly use a lifebuoy (throwing, entering and securing in it while in the water and waiting for rescue)[*2]
2) how to correctly use a line throwing device[*2] (as per policy in section 1.11)
3) how to use lifebuoys with self-igniting lights[*2]

3.6) discuss personal survival
1) how to keep afloat without a lifejacket, immersion suit and/or anti-exposure suit (without any aid)

Demonstrate
a) how to stay together in the water[*2]
b) how to take the Heat Escape Lessening Posture (HELP)[*1]
c) how to swim as a group in a chain[*1] & [*]
d) how to form a huddle in the water[*1] & [*]
e) how to use rescue blankets[*2]

3.7) present actions to take after abandoning a vessel[*2] or [*3]
1) in a survival craft
2) in an inflatable or rigid hull liferaft
3) in winter and/or ice covered water

4) in very warm weather
5) if lifeboat engine is not starting (how to use oars)
6) when rescue is far away

4) Lifeboats **0.5 hr Lecture & 2.5 hrs Practical**
(0.25 hr Lecture & 0.5 hr Practical & 2.25 hrs Simulation if simulation is being used)

Instructors will:

4.1) give a general overview
1) precautions to take during winter or in presence of ice
2) the importance of following manufacturer's recommended maintenance guidelines
3) the importance of lifeboat davits maintenance
4) how to launch and handle lifeboats when in ice[*2a]
5) how to launch lifeboats in rough sea[*2a]
6) how to clear the ship's side[*2a]
7) how to recover lifeboats during drills[*2a]
8) lifeboat engine and accessories[*2a]
9) lifeboat water spray system[*2a]
10) lifeboat self-contained air support system[*2a]

4.2) describe free-fall lifeboat davits
1) demonstrate free-fall launching[*2] or[*3]
2) explain and demonstrate key points when recovering free-fall lifeboat after a drill[*2] or [*3]
3) explain the importance of following manufacturer's recommended maintenance guidelines

4.3) enact various scenarios of lifeboat drills, including drills in launching and recovering boats and at least one in cold climate [*] (may simulate cold climate scenario)
1) how to act as an efficient member of a launching/recovering crew[*1/*1a]
2) how to get into a lifeboat from the ship[*1]
3) how to get into a lifeboat from the water[*1]
4) how to correctly secure yourself in it[*1]
5) how to correctly bring an injured or exhausted survivor on board a lifeboat[*2]
6) how to correctly secure an injured crew member[*2]
7) how to correctly launch a lifeboat that is securely fasted under davits, and clear the ship's side quickly [*2/*2a] &[*]
8) how to start and operate an inboard engine fitted in a enclosed lifeboat[*2/*2a]
9) how to steer a boat by compass[*2/*2a]
10) how to act as coxswain in handling a boat under power[*1/*1a]
11) how to stream a sea anchor[*2/*2a]
12) how to correctly use all equipment[*2]
13) how to properly care for and stow a lifeboat[*2]
14) how to safely recover the boats[*2/*2a]
15) how to use proper techniques for beaching [*2] or [*3]

5) Rescue boats **0.5 hr Lecture & 2.5 hrs Practical**
(0.25 hr Lecture & 0.5 hr Practical & 2.25 hrs Simulation if simulation is being used)

Instructors will:

5.1) give a general overview – reminder

1) precautions to take during winter or in presence of ice
2) the importance of following manufacturer's recommended maintenance guidelines
3) the importance of following manufacturer's recommended maintenance guidelines for davits
4) rescue boat outboard engines
5) how to launch rescue boats in rough sea[*2a]
6) how to recover rescue boats[*2a]
7) how to marshal and tow liferafts and rescue survivors from the sea[*2a]

5.2) enact various scenarios of rescue boat drills, including drills in launching and recovering boats[*]
1) how to act as an efficient member of a launching/recovery crew[*1/*1a] & [*]
2) how to correctly launch a rescue boat and clear the ship's side quickly[*2/*2a] &[*]
3) how to correctly use all equipment[*2]
4) how to properly care for and stow rescue boats[*2]
5) how to steer the rescue boat by compass[*2/*2a]
6) how to act as coxswain in handling rescue boats[*1/*1a]
7) how to pick up a survivor from the water[*2] &[*2a]
8) how to correctly get back on board, in full survival gear[*1]
9) how to correctly secure an injured crew member[*2]
10) how to safely bring the rescue boat alongside[*2/*2a]
11) how to safely transfer passenger/survivor[*2]
12) how to correctly marshal liferafts[*2/*2a]
13) how to correctly tow liferafts[*2/*2a]
14) how to use proper techniques for beaching[*2] or [*3]

6) Liferafts, rigid hull liferafts and marine evacuation systems 0.5 hr Lecture & 2.5 hrs Practical

Instructors will:

6.1) discuss liferafts
1) demonstrate the proper stowage and releasing mechanism[*2] or [*3]
2) explain the importance of following manufacturer's recommended maintenance guidelines
3) describe special care in cold climate

Demonstrate

a) how to correctly launch an inflatable liferaft[*2]
b) how to correctly launch a davit launched liferaft[*2]
c) how to board a liferaft from the water, while wearing a lifejacket[*1]
d) how to board a liferaft from the water, while wearing a survival suit[*1]
e) how to use the various gear and equipment in the survival pack[*2]
f) how to right an inverted liferaft while wearing a lifejacket[*1]
g) how to manoeuvre a liferaft and set the anchor to reduce drift[*2]
h) how to retrieve a man overboard[*1]
i) how to throw the rescue quoit and line to a person in the water[*2]
j) how to care for and stow liferafts[*2]

6.2) describe how to handle liferafts in rough weather

6.3) describe float-free arrangements
1) demonstrate characteristics and operation of the hydrostatic release units, including limitation and expiry date[*2] or [*3]
2) demonstrate installation, including best position of the hydrostatic release[*2]

6.4) discuss rigid hull liferafts and equipment

1) demonstrate the basic features of this type of liferaft *2 or *3
2) demonstrate the proper stowage and releasing mechanism *2 or *3
3) explain the importance of following manufacturer's recommended maintenance guidelines
4) describe special care when launching in presence of ice

Demonstrate

a) how and when to correctly launch a rigid hull liferaft from the ship's deck *2 or *3
b) how to use a survival pack *2 or *3
c) how to board a rigid hull liferaft from the water, with lifejacket and then with survival suits *2 or *3
d) how to manoeuvre the rigid hull liferaft and set the anchor to reduce drift *2 or *3
e) how to retrieve a man overboard *2 or *3
f) how to dewater a rigid hull liferaft *2 or *3
g) how to care for and stow a rigid hull liferaft *2 or *3

6.5) discuss marine evacuation systems
1) explain the importance of following manufacturer's recommended maintenance guidelines
2) describe special care when launching in presence of ice
3) demonstrate main types of marine evacuation systems *3

7) Survival, first aid and rescue **0.5 hr Lecture & 2 hrs Practical**

Instructors will:

7.1) review initial actions – reminder
1) survivors in water should be taken on board
2) all persons on board should receive anti-seasickness tablets
3) how to secure survival craft together with the painter
4) how to use sea anchors
5) immediate actions are to:
a) stream the sea anchor
b) set an EPRIB to function
c) give anti-seasickness pills to all persons on board
d) bail the craft dry
e) treat the injured
f) inflate the liferaft floor in cold conditions
g) get radio equipment ready
h) post lookouts

6) the need to ventilate a liferaft after it has been inflated before closing the openings
7) instructions on how to survive are in liferafts
8) how to apportion food and water

7.2) discuss actions to increase chances of survival and rescue
1) review of IMO MSC.1/Circ.1185/Rev 1(or latest version) on survival in cold water

7.3) give first aid demonstrations– reminder
1) how to perform mouth-to-mouth breathing or mouth-to-nose * 2 on a life-size model
2) how to recognize the signs of a heart attack * 2
3) compression by external cardiac massage technique * 2 on a mannequin
4) how two people can combine cardiac compression and artificial respiration mouth-to-mouth * 2
5) the position in which to place an unconscious subject * 2

6) how to use the resuscitation equipment with oxygen inhaler *2 or *3
7) contents of a first aid kit *2
8) how to prepare a wounded for evacuation in a Stokes litter *2

7.4) review how to recognize and operate signalling devices – reminder

7.5) review GMDSS portable radios – reminder
1) demonstrate throughout drills, proper communication using a VHF*1

7.6) pyrotechnics
1) demonstrate main types*2 of pyrotechnics

7.7) line throwing devices
1) give a live demonstration of how to correctly use line throwing devices*2 (can be replaced by an audio-visual presentation);

7.8) discuss rescue equipment
1) demonstrate how to use a rescue sling*1, rescue basket*3 and rescue net*2

8) Helicopter assistance 0.25 hr Lecture & 0.25 hr Practical

Instructors will:

8.1) describe communicating with the helicopter
1) demonstrate signals used*2
2) explain how to communicate with the helicopter through a shore station if the appropriate equipment is available

8.2) describe helicopter pick-up*2 or *3
1) demonstrate methods of pick-up by harness, stretcher and rescue net
2) demonstrate hand and arm signals used for safe lifting
3) describe how the helicopter crew assists in pick-up
4) stress the importance of obeying the helicopter pilot's instructions

9) Fire cause and prevention 1 hr Lecture & 0.5 hr Practical

Instructors will:

9.1) review fire theory
1) fire tetrahedron
2) classes of fire
3) stages of fire development
4) methods of heat transfer
5) products of combustion
6) extinguishing principles
7) extinguishing agents and techniques
8) properties of flammable materials
9) dry distillation

Note: Instructors may use a video to illustrate the above.

9.2) quickly review fire prevention –reminder
1) prevention measures relevant to vessel operations
2) fire safety procedures

3) how to stow flammable stores
4) dry dock procedures

9.3) discuss fire fighting gear and demonstrate:
1) how to prepare gear so it is ready for use[*2]
2) how to put on the complete fireman's outfit in a timely manner[*1]
3) how to use the lifeline for signalling[*2] or [*3]
4) how to use a fire blanket[*2]
5) how to properly use a fire axe[*2] or [*3]

Note: The instructor can spread out these demonstrations during drills

9.4) regulatory requirements – outfits and gear
1) explain changes to SOLAS and the Canadian regulations
2) describe special requirements for various type of vessels, including oil tankers, chemical and gas tankers, and passenger vessels

10) Fire fighting systems **1 hr Lecture & 2 hrs Practical**

Instructors will:

10.1) give a brief overview of structural fire protection
1) explain changes to SOLAS and the Canadian regulations

10.2) explain various types of vessel main fire fighting systems and demonstrate:
1) how it works[*2] or [*3]
2) care and maintenance[*2] or [*3]
3) special care when sailing in cold climate[*2] or [*3]

10.3) explain dangers of using water for fire fighting:
1) give general principle
2) describe precautions when in cold climate
3) demonstrate what may go wrong[*3]

10.4) discuss inspection of the fire mains, including hydrants, hoses and nozzles and demonstrate:
1) how[*2] or [*3]
2) care and maintenance[*2] or [*3]
3) special care when sailing in cold climate[*2] or [*3]

10.5) describe fire detection equipment and demonstrate:
1) how it works[*2] or [*3]
2) care and maintenance[*2] or [*3]
3) special care when sailing in cold climate[*2] or [*3]

10.6) describe fixed fire extinguishing systems and demonstrate:
1) how it works[*2] or [*3]
2) care and maintenance[*2] or [*3]
3) special care when sailing in cold climate[*2] or [*3]

10.7) describe portable and mobile extinguishing systems and demonstrate:
1) how it works[*2] or [*3]
2) care and maintenance[*2] or [*3]
3) special care when sailing in cold climate[*2] or [*3]
4) salvage equipment, including fire fighting tugs, helicopters, fire boats[*3]

11) Training of crew members **1 hr Lecture & 5.5 hrs Practical**

Instructors will:

11.1) quickly review crew familiarization and training –reminder
1) chapter 4 of this standard pertaining to fire fighting
2) training seafarers in fire fighting
3) composition and allocation of personnel for fire parties
4) the importance of fire control plans
5) the organization and task of fire parties
   a) in a small fire
   b) in an extensive fire
6) how to prepare contingency plans
7) how to organize fire drills
8) strategies and tactics for controlling fires on ships at sea
9) strategies and tactics for controlling fires on ships in port
10) strategies and tactics for controlling fires on ships carrying dangerous cargoes
11) strategies and tactics for controlling fires on oil, chemical and gas tankers
12) control of fuel and electrical systems

Demonstrate[*]

a) using the various scenarios developed from the table top exercises or other classes, carry out real fire fighting exercises fighting small and extensive fires (including various techniques) using the ship mock-up[*1] & [*]

Note: One scenario must include a diesel main engine fire; another must include a fire fighting drill in cold climate (may simulate cold climate scenario).

11.2) discuss communication and coordination during fire fighting operations
1) demonstrate equipment used on board – reminder[*2]
2) demonstrate the limitations of communication equipment[*2]
3) using the ship mock-up, demonstrate various fire fighting exercises, which include coordinating with shore-based firefighters[*]

11.3) review ventilation – reminder
1) control of ventilation with regard to fire fighting
2) smoke extraction
3) demonstrate through fire fighting exercise[*]

12) Management and control of injured persons **0.5 hr Lecture & 2 hrs Practical**

Instructors will:

12.1) demonstrate rescue equipment
1) demonstrate rescue equipment carried on board vessels[*2] & [*3]
2) demonstrate the international medical guide for ships[*2]
3) describe main health hazards from fire
4) demonstrate first aid for burns (fire, chemical and electrical)[*2]
5) demonstrate resuscitation techniques, from CPR to the use of a automatic external defibrillator (AED)[*1]

13) Lesson learned **0.5 hr Lecture**

Instructors will:

13.1) review past and recent fire incidents

13.2) review investigation and reporting

19.9 EVALUATION

The evaluation consists of two parts:

1) 30 multiple-choice questions covering the complete knowledge and competency of the STCW BS, PSC and AFF courses. Passing mark to obtain the TCMSS training certificate is 70%.

2) practical assessment achieved during the course.
The following legend indicates which competency is part of the skill-based assessment:

   *1 This is part of the skill-based assessment, therefore every candidate must be able to demonstrate their competency.

   *2 Not a skill requirement but must be demonstrated by the instructor and/or at least one candidate, depending on the amount of equipment available.

   a A numeral followed by the letter "a" indicates that simulation conforming to the requirements in section 3.4 may be used for skills-based assessment.

   For drills marked with a *, every candidate must:

   - demonstrate during the course that he can act as a lead team member on at least on fire fighting drill and one survival drill.
   - show that they have achieved a level of knowledge and confidence that will permit them to take command and control of a fire fighting team in case of a real fire incident.

20 PROFICIENCY IN FREE-FALL LIFEBOATS (FFB)

20.1 GENERAL

1) this course meets the requirements of STCW Code Section B-I/14 , *Guidance regarding responsibilities of companies and recommended responsibilities of masters and crew members*.

2) companies should provide ships-specific introductory programs aimed at helping newly employed seafarers to become familiar with all procedures and equipment related to their areas of responsibility. Companies should ensure that:

   a) all seafarers on a ship fitted with free-fall lifeboats receive familiarization training in boarding and launching procedures for such lifeboats;

   b) before joining a ship, seafarers assigned as operating crew of free-fall lifeboats have undergone appropriate training in boarding, launching and recovering of free-fall lifeboats, including participation on at least one occasion in a free-fall launch.

20.2 EQUIPMENT REQUIREMENTS

1) the following documents:

   a) International Convention for the Safety of Life at Sea, 1974 (SOLAS 1974), as amended,

   b) IMO Life Saving Appliances Code (LSA code),

   c) IMO MSC circulars 1206 and 1207,

   d) free-fall lifeboat manufacturer's instruction and operation manual,

   e) case study involving free-fall lifeboats accidents/incidents.

2) if using a SOLAS approved free-fall lifeboat:

   a) one SOLAS approved free-fall lifeboat along with ramps structure from which free-fall lifeboat can be launched in open water. Boat must be fully equipped with all the standard lifeboat equipment/gear as mentioned in SOLAS and specially designed with enough strength for repeated training purpose,

   b) davit assembly to recover and house the free-fall lifeboat,

   c) one additional boat/dinghy which could be used for transferring personnel in case of an emergency,

   d) enough inflatable lifejackets for all trainees and instructors,

   e) three 2-way radiotelephones approved for use in the boats and by the shore rescue team,

   f) access to open waters where a variety of sea states may be encountered,

   g) safety/first aid equipment comprising:

      i. standby rescue boat,

      ii. stretcher,

h) showers, a changing room with lockers for trainees' dry clothing and a drying room for wet gear should be provided near the exercise area.

3) if using an approved free-fall lifeboat simulator:

a) one simulator facility fully equipped with all necessary gear, teaching aids and video facility,

b) one DNVGL classification society approved Class A or Class S type free-fall lifeboat simulator mounted on a 6 degree of freedom motion base, Class S Simulators will be accepted by TCMSS on a case-by-case basis only;and

c) one simulator driven physical hook trainer containing two hook/ring assemblies, appropriate to freefall lifeboats,meeting SOLAS requirement.

d) One pre-launch inspection trainer appropriate to preparing a freefall lifeboat for launch and recovery

20.3 DURATION

A minimum of 12 hours

Note: This duration is based on a maximum class size of six candidates and using a SOLAS approved free-fall lifeboat. If an institution wishes to deliver this training course with a maximum of three candidates and/or using an approved free-fall lifeboat simulator, it can request approval for a shorter timeframe.

20.4 PRE-REQUESITE AND MINIMUM AGE

1) a person must be at least 16 years of age to take the FFB course.

2) a person must hold a training certificate in Proficiency in Survival Craft and Rescue Boats other than Fast Rescue Boats (PSC) or equivalent under subsection 2.2 of chapter 2 of this TP to take this course.

20.5 INSTRUCTOR QUALIFICATIONS

1) Teachers and Instructors must be qualified in the tasks they teach and be appropriately trained in instructional techniques and training methods as set out in section A-I/6 of Part A of the 2010 STCW Code;

2) In the case of a specialized marine training course, the main course instructor, in addition to holding qualifications for teaching, must have received appropriate training and hold a valid TC instructor approval letter.

Note: If the course is under the supervision of more than one instructor, the assistant instructors must hold the qualifications required by subsection 1.6 of this TP.

20.6 GOALS

Trainees who successfully complete this course will be able to undertake the tasks, duties and responsibilities related to launching and recovering a free-fall lifeboat and take charge of a boat

as a coxswain and for other related duties as “Designated Persons”. The trainees will also overcome the mental block/fear typically associated with the launch of free-fall boats.

20.7 CLASS SIZE

If the approved institution is using a simulator, class size should be limited to a maximum of six trainees. This will ensure that all trainees have enough practical time on the simulator.

20.8 OUTLINE

SUBJECT AREA	HOURS	
	LECTURE	**PRACTICAL/ SIMULATION**
1) Introduction and safety 1) Introduction 2) Principles of safety	0.75 hr	
2) Free-fall lifeboats (FFB) 1) General 2) Familiarization and training of crew members 3) Free-fall lifeboat davits 4) Various scenarios of free-fall lifeboat drills, including drills in launching* 5) Recovery of FFB during drills	3.0 hrs	6 hrs
3) Batteries and engine 1) FFB engine and accessories	1.0 hr	0.75 hr
4) Evaluation	0.5 hr	Within the course hours
TOTAL	**5.25 hrs**	**6.75 hrs**
	12 hrs	

20.9 SYLLABUS

Legend for practical demonstrations	
*1	This is part of the skill-based assessment, therefore every candidate must be able to demonstrate their competency.
*1a	This is part of the skill based assessment. If simulator training conforming to section 20.2.3 is used in the course, every candidate must be able to demonstrate their competency using the simulator.
*2	Not a skill requirement but must be demonstrated by the instructor and/or at least one candidate, depending on the amount of equipment available.
*2a	Not a skill requirement. If simulator training conforming to section 20.2.3 is used in the course, the demonstration may be conducted using the simulator.
*3	Knowledge may be covered using a video or an audio visual presentation

1) Introduction and safety **0.75 hr Lecture**

Instructors will:

1.1) give an introduction
- 1) Learning objectives
- 2) Course syllabus
- 3) Who needs to follow this training course
- 4) Various documents for review during the course (study cases, LSA code, etc.)

1.2) present principles of safety
- 1) Always follow instructor safety rules
- 2) Always be careful, even though the incidents are simulated
- 3) Always follow extra safety precautions when using the SOLAS approved free-fall lifeboat,

2) Free-fall lifeboats (FFB) **3 hrs Lecture & 6 hrs Practical**

Instructors will:

2.1) give a general overview
- 1) identify SOLAS FFB, demonstrating their construction and outfit particularities[*3]
- 2) describe the number and type of requirements on board, as per SOLAS and Canadian regulations, depending on type of vessel
- 3) interpret the markings on a FFB as to the number of persons it is permitted to carry
- 4) explain the importance of a checklist for pre-boarding of a FFB
- 5) list the normal equipment found on a FFB
- 6) explain the importance of following the manufacturer's recommended maintenance guidelines
- 7) demonstrate various FFB sprinkler systems and their particularities[*2/*2a] or [*3]
- 8) demonstrate various FFB air supply systems and their particularities[*2/*2a] or [*3]
- 9) describe the precautions to take during winter or in presence of ice

2.2) discuss familiarization and training of crew members
- 1) explain the familiarization and training required as per SOLAS and Canadian regulations

2.3) describe free-fall lifeboat davits
- 1) describe the arrangements for stowage, securing, and the methods of launching the FFB
- 2) describe launching sequences
- 3) explain that there is a secondary means of launching
- 4) explain the importance of a good sitting position when launching the FFB to avoid whiplash
- 5) explain launching procedure when launching in rough weather
- 6) explain the importance of following the manufacturer's recommended maintenance guidelines

2.4) enact various scenarios of free-fall lifeboat drills, including drills in launching and at least one in cold climate[*] (may simulate cold climate scenario)
- 1) how to act as an efficient member of a launching crew[*1/*1a]
- 2) how to get into a FFB correctly from a ship[*1/*1a]
- 3) how to correctly secure yourself in the FFB[*1/*1a]
- 4) how to pick up an injured or exhausted survivor on board a FFB[*2]
- 5) how to correctly secure an injured crew member[*2/*2a]
- 6) how to correctly launch a FFB[*1 /*1a] & [*]
- 7) how to steer a boat by compass[*1/*1a]
- 8) how to act as coxswain in handling a boat under power[*1/*1a]

9) how to correctly use all equipment[*2]
10) properly care for and stow a FFB[*2/*2a]
11) how to use proper techniques for beaching[*2/*2a] or [*3]
12) how to use proper techniques for free-fall launching[*2/*2a]
13) how to manoeuvre a FFB in calm seas[*1/*1a]
14) how to manoeuvre a FFB in adverse weather[*2/*2a] or [*3]
15) how to use proper techniques for towing and being towed[*2/*2a]
16) how to launch FFB in ice covered waters[*2/*2a] or [*3]

2.5) describe recovery of FFB during drills
1) explain and demonstrate how to handle FFB while coming alongside a ship or quay[*1/*1a]
2) explain how to use the painter to help keep FFB alongside
3) explain that the coxswain should be the last person to leave the FFB and it would be his responsibility to check that the boat is secure
4) act as an efficient member of a recovering crew during the demonstration[*1/*1a]
5) demonstrate how to safely recover the boat[*2/*2a] &[*]
6) explain and demonstrate key points when recovering a FFB after a drill[*2/*2a] or [*3]

3) Batteries and engine **1.0 hr Lecture & 0.75 hr Practical**

Instructors will:

3.1) discuss FFB engine and accessories
1) explain how to start a FFB engine
2) explain the importance of following safety checklist
3) explain the importance of following the manufacturer's instructions and control settings
4) explain how to operate ahead and astern propulsion
5) explain how to stop engine
6) explain how to clean the fuel tank and renew fuel filters
7) explain how much a FFB requires and when it needs to be changed
8) explain the importance of battery condition
9) describe the different cooling systems
10) describe arrangements for charging batteries from the ship's power supplies
11) describe how to extinguish a fuel fire with the extinguisher provided in the boat
12) describe winterization
13) demonstrate how to start and operate an inboard engine fitted in a FFB[*2/*2a]

20.10 EVALUATION

The evaluation consists of two parts:

1) 25 multiple-choice questions covering the complete knowledge and competency of the course. Passing mark to obtain the TCMSS training certificate is 70%.

2) practical assessment achieved during the course.
The following legend indicates which competency is part of the skill-based assessment:

[*1] this is part of the skill-based assessment, therefore every candidate must be able to demonstrate their competency.
[*2] not a skill requirement but must be demonstrated by the instructor and/or at least one candidate, depending on the amount of equipment available.
[a] A numeral followed by the letter "a" indicates that simulation conforming to the requirements in section 20.2.3 may be used for skills based assessment.

For drills marked with a *, every candidate must demonstrate during the course that he can act as a coxswain on a free-fall lifeboat.

21 REFRESHER TRAINING COURSE IN PROFICIENCY IN FREE-FALL LIFEBOATS (REF-FFB)

21.1 GENERAL

1) this course meets the requirements of the STCW Code Section B-I/14, *Guidance regarding responsibilities of companies and recommended responsibilities of masters and crew members*.

2) companies should provide ships-specific introductory programs aimed at helping newly employed seafarers become familiar with all procedures and equipment related to their areas of responsibility. Companies should ensure that:

   a) all seafarers on a ship fitted with free-fall lifeboats receive familiarization training in boarding and launching procedures for such lifeboats;

   b) before joining a ship, seafarers assigned as operating crew of free-fall lifeboats have undergone appropriate training in boarding, launching and recovering of free-fall lifeboats, including participation on at least one occasion in a free-fall launch.

3) seafarers qualified in accordance with STCW Section B-I/14 in free-fall lifeboats must, every five years provide evidence of having maintained the required standard of competence to undertake the tasks, duties and responsibilities required to act as coxswain of a free-fall lifeboat.

21.2 EQUIPMENT REQUIREMENTS

1) the following documents:

   a) International Convention for the Safety of Life at Sea, 1974 (SOLAS 1974), as amended,

   b) IMO Life Saving Appliances Code (LSA code),

   c) IMO MSC circulars 1206 and 1207,

   d) free-fall lifeboat manufacturer’s instruction and operation manual,

   e) case study involving free-fall lifeboats accidents/incidents.

2) if using a SOLAS approved free-fall Lifeboat:

   a) one SOLAS approved free-fall lifeboat along with ramps structure from which free-fall lifeboat can be launched in open water. Boat must be fully equipped with all the standard lifeboat equipment/gear as mentioned in SOLAS and specially designed with enough strength for repeated training purpose,

   b) davit assembly to recover and house the free-fall lifeboat,

   c) one additional boat/dinghy which could be used for transferring personnel in case of an emergency,

   d) enough inflatable lifejackets for all trainees and instructors,

e) three 2-way radiotelephones approved for use in the boats and by the shore rescue team,

f) access to open waters where candidates may encounter a variety of sea states,

g) safety/first aid equipment comprising:

i. standby rescue boat,

ii. stretcher,

h) showers, a changing room with lockers for trainees' dry clothing and a drying room for wet gear should be provided near the exercise area.

3) if using an approved free-fall lifeboat simulator:

a) one simulator facility fully equipped with all necessary gear, teaching aids and video facility,

b) one DNVGL classification society approved Class A type free-fall lifeboat simulator mounted on a 6 degree of freedom motion base, Class S Simulators will be accepted by TCMSS on a case-by-case basis only;

c) one simulator driven physical hook trainer containing two hook/ring assemblies appropriate to freefall lifeboats, meeting SOLAS requirement; and

d) one pre-launch inspection trainer appropriate to preparing a freefall lifeboat for launch and recovery.

21.3 DURATION

A minimum of 7 hours

Note: This duration is based on a maximum class size of six candidates and using a SOLAS approved free-fall lifeboat. If an institution wishes to deliver this training course with a maximum of three candidates and/or using an approved free-fall lifeboat simulator, it can request approval for a shorter timeframe.

21.4 PRE-REQUESITE AND MINIMUM AGE

1) a person must be at least 16 years of age to take the REF-FFB course.

2) a person must hold a training certificate in Proficiency in Free-fall Lifeboats (FFB) to take this course.

21.5 INSTRUCTOR QUALIFICATIONS

1) Teachers and Instructors must be qualified in the tasks they teach and be appropriately trained in instructional techniques and training methods as set out in section A-I/6 of Part A of the 2010 STCW Code;

2) In the case of a specialized marine training course, the main course instructor, in addition to holding qualifications for teaching, must have received appropriate training and hold a valid TC instructor approval letter.

Note: If the course is under the supervision of more than one instructor, the assistant instructors must hold the qualifications required by subsection 1.6 of this TP.

21.6 CLASS SIZE

If the approved institution is using a simulator, class size should be limited to a maximum of six trainees. This will ensure that all trainees have enough practical time on the simulator.

21.7 OUTLINE

SUBJECT AREA	HOURS	
	LECTURE	**PRACTICAL/ SIMULATION**
1) Introduction and safety 1) Introduction 2) Principles of safety	0.75 hr	
2) Free-fall lifeboats (FFB) 1) General 2) Free-fall lifeboat davits 3) Various scenarios of free-fall lifeboat drills, including drills in launching* 4) Recovery of FFB during drills	1.0 hr	4.75 hrs
3) Evaluation	0.5 hr	Within the course hours
TOTAL	**2.25 hrs**	**4.75 hrs**
	7 hrs	

21.8 SYLLABUS

Legend for practical demonstrations	
*1	This is part of the skill-based assessment, therefore every candidate must be able to demonstrate their competency.
*1a	This is part of the skill based assessment. If simulator training conforming to section 21.2.3 is used in the course, every candidate must be able to demonstrate their competency using the simulator.
*2	Not a skill requirement but must be demonstrated by the instructor and/or at least one candidate, depending on the amount of equipment available.
*2a	Not a skill requirement. If simulator training conforming to section 21.2.3 is used in the course, the demonstration may be conducted using the simulator.
*3	Knowledge may be covered using a video or an audio visual presentation

1) Introduction and safety **0.75 hr Lecture**

Instructors will:

1.1) give an introduction
1) learning objectives
2) course syllabus
3) who needs to follow this training course
4) various documents for review during the course (study cases, LSA code, etc.)

1.2) present principles of safety
1) Always follow instructor safety
2) Always be careful, even though the incidents are simulated
3) Always follow extra safety precautions when using the SOLAS approved free-fall Lifeboat

2) Free-fall lifeboats (FFB) **1 hr Lecture & 4.75 hrs Practical**

Instructors will:

2.1) give a general overview
1) identify SOLAS FFB, demonstrating their construction and outfit particularities[*3]
2) explain the importance of following the manufacturer's recommended maintenance guidelines
3) demonstrate various FFB sprinkler systems and their particularities[*2/*2a] or [*3]
4) demonstrate various FFB air supply systems and their particularities[*2/*2a] or [*3]
5) describe the precautions to e take during winter or in presence of ice
6) quickly review FFB engines and batteries particularities
7) demonstrate new models, if any

2.2) describe free-fall Lifeboat davits
1) quickly review their particularities
2) explain the importance of a good sitting position when launching the FFB to avoid whiplash
3) explain launching procedure when launching in rough weather
4) explain the importance of following the manufacturer's recommended maintenance guidelines

2.3) enact various scenarios of free-fall lifeboat drills, including drills in launching[*]
1) how to act as an efficient member of a launching crew[*1/*1a]
2) how to get into the FFB correctly from a ship[*1/*1a]
3) how to correctly secure yourself in the FFB[*1/*1a]
4) how to pick up an injured or exhausted survivor on board a FFB[*2]
5) how to correctly secure an injured crew member[*2//*2a]
6) how to correctly launch a FFB[*1 /*1a] & [*]
7) how to act as coxswain in handling a boat under power[*1/*1a]
8) how to use proper techniques for beaching[*2/*2a] or [*3]
9) how to correctly use all equipment[*2]
10) how to manoeuvre a FFB in calm seas[*1/*1a]
11) how to manoeuvre a FFB in adverse weather[*2/*2a] or [*3]
12) how to use proper techniques for towing and being towed[*2/*2a]
13) how to launch a FFB in ice covered waters[*2/*2a] or [*3]
14) how to start and operate an inboard engine fitted in a FFB[*2/*2a]

2.4) describe recovery of FFB during drills, including at least one in cold climate (may simulate cold climate scenario)

1) how to act as an efficient member of a recovering crew during the demonstration[*1/*1a]
2) how to demonstrate the ability to safely recover the boat[*2/*2a] &[*]
3) how to explain and demonstrate key points when recovering FFB after a drill[*2/*2a] or [*3]

21.9 EVALUATION

The evaluation consists of two parts:

1) 25 multiple-choice questions covering the complete knowledge and competency of the course. Passing mark to obtain the TCMSS training certificate is 70%.

2) practical assessment achieved during the course.
The following legend indicates which competency is part of the skill-based assessment:

   [*1] this is part of the skill-based assessment, therefore every candidate must be able to demonstrate their competency.

   [*2] not a skill requirement but must be demonstrated by the instructor and/or at least one candidate, depending on the amount of equipment available.

   [a] A numeral followed by the letter "a" indicates that simulation conforming to the requirements in section 21.2.3 may be used for skills based assessment.

   For drills marked with a [*], every candidate must demonstrate during the course that he can act as a coxswain on a free-fall lifeboat.