	DIRECTORATE GENERAL OF SHIPPING, GOI, MUMBAI	IS/ISO Clause No.7.1
Ref.:QMS EACQP-07-1 Page 1 of 2	Subject:- : Revised Guidelines for Basic and Advanced Training for Oil / Chemical / Liquefied Gas Tanker Cargo Operations in accordance with Section A-V/1 of the STCW code as amended in 2010	File No. TR/Cir/6(2)/2015
Approved by the Director General of Shipping	**Training Circular No. 5 of 2015**	Date : 10th July, 2015

1. The Manila amendments to the STCW convention and code, as adopted on 25th June 2010, have entered into force on 1st January 2012. In accordance with these amendments, the Chapter V of the convention and the code, as related to Oil, Chemical and liquefied Gas Tankers, have been revised and the competency standards have been prescribed in the four column Competency Table Format.

2. Accordingly, the IMO Model courses related to Basic training for Oil, Chemical and liquefied Gas Tanker No. 1.01, 1.04, 1.05 has been revised.

3. This Directorate has prepared the comprehensive Guidelines for the following training courses:

a) Basic Training for Oil Tanker Cargo Operations (Course ID 73)

b) Basic Training for Chemical Tanker Cargo Operations (Course ID 74)

c) Basic Training for Liquefied Gas Tanker Cargo Operations. (Course ID 75)

d) Basic Training for Oil and Chemical Tanker Cargo Operations (Course ID 76)

4. The formats of the certificates to be issued on successful completion of the courses concerned are also annexed to these Guidelines, which must be strictly adhered to. These certificates are NOT Certificates of Proficiency in Basic training in Oil/ Chemical/ Liquefied Gas Tanker Cargo operations. The respective certificate along with other requisite documents must be submitted to the Administration (for officers), or its authorized centre(s) (in case of non-officers), as the case may be, to obtain the respective certificate of proficiency.

5. It is to be noted that for Basic training in Oil / Chemical / Liquefied Gas Tanker Cargo Operations, Practical Tanker Fire-fighting course certificate is necessary to complete the Basic Tanker training requirements and subsequently for obtaining the Certificate of Proficiency.

6. The aforesaid Guidelines shall come in force w.e.f. 1st August, 2015 and all the approved training institutes conducting these courses are required to comply with these Guidelines by that date. All training institutes are required to take note of these formats and implement them for the approved training course certificates w.e.f. 1st August, 2015.

7. This is issued with the approval of the Director General of Shipping, under the powers conferred in Chapter IX Rule 75 of the Merchant Shipping [Standard of Training, Certification & Watch keeping for Seafarers] Rules, 2014.

10.7.15

(Anand Kumar)
Asstt. Director General of Shipping (Training)

To,
1. All Maritime Training Institutes [through DGS website]

Copy to:
1. The Principal Officers, MMD, Mumbai/Chennai/Kolkata/Kochi/Kandla.
2. The Shipping Master, Mumbai/Kolkata/Chennai
3. INDOS Cell, Nau Bhavan, Mumbai 1.
4. Nautical Branch
5. Engineering Branch
6. INSA/FOSMA/MASSA/ICCSA/MUI
7. Management Representative,[QMS], EAC Branch, DGS
8. Computer Cell with a request to upload in the website
9. Hindi Cell with a request to provide Hindi Version.
10. E-Governance Cell.
11. Guard file
12. Sr.PS to DG[S] for information.

MANDATORY GUIDELINES FOR TRAINING INSTITUTES FOR OBTAINING APPROVAL FROM DIRECTORATE GENERAL OF SHIPPING

TO CONDUCT

BASIC TRAINING IN OIL TANKER CARGO OPERATIONS (Course ID 73)

To avoid unnecessary repetition, reference has been made herein to DGS Order no: 1 of 2003 (Guidelines for the conduct of Pre-Sea Training courses for Merchant Navy) Wherever appropriate.

TABLE OF CONTENTS

BASIC DETAILS OF THE COURSE

1.1. AIMS:

This course provides training to candidates to be duly qualified under Section A – V/1-1 of the STCW code with specific duties and responsibilities related to cargo or cargo equipment on oil tankers. It comprises of a basic training programme appropriate to their duties, including basic training for oil tanker safety, fire safety measures, pollution prevention, safe operational practices and obligations under applicable law and regulations. The course covers the competence requirements as given in the table A-V/1-1-1 related to oil tankers, of the STCW Code adopted by the International Convention on Standards of Training, Certification and Watchkeeping for Seafarers, 1978 as amended in 2010.

1.2. Objective

Provided they hold an appropriate certificate and are otherwise qualified in accordance with regulation Section A-VI/1 of the International Convention on Standards of Training, Certification and Watchkeeping for Seafarers 1978, as amended, those successfully completing the course will be eligible to carry out assigned specific duties and responsibilities related to cargo or cargo equipment on Oil Tankers. The trainee shall:

- Be familiar with the equipment, instrumentation and controls used for cargo handling on an oil tanker
- Have acquired greater awareness of the need of proper planning and the use of checklists involved in various cargo handling operations
- Have an enhanced awareness to apply proper and safe procedures at all times when carrying out the various operations on board oil tankers
- Be able to identify operational problems and assist in solving them.
- Follow safety practices and protect the marine environment
- Be able to assist and co-ordinate actions during emergencies

These guidelines shall be applicable from 01.08.2015.

2. QUALIFICATION & ELIGIBILITY OF STUDENTS

2.1. Entry standards

This course is principally intended for candidates for certification for basic training for oiltanker cargo operations as specified in section A-V/1-1 para 1 of the STCW Code as amended. The trainees shall have successfully completed approved Basic Safety Training course as per STCW Section A – VI/1, para 2, 3, Tables A – VI/1-1, A – VI/1-2, A- VI/1-3, A – VI/1-4.

2.2. Required attendance:

100% attendance is required for successful completion of the course.
However, in exceptional circumstances, a student is allowed absence of up to one day subject to his attending the lectures missed out during the next course at the same institute. The institute shall keep proper records of such cases.

2.3. Course intake limitations

The number of trainees should not exceed 24 and practical training should be undertaken in small groups of not more than eight.

3. INFRASTRUCTURE REQUIREMENT

3.1. Teaching facilities and equipment

Ordinary classroom facilities and an overhead projector are sufficient for most of the Course. However, dedicated CBT modules to be run on an ordinary PC as well as exercises on an operational, hands-on liquid cargo handling simulator, will greatly enhance the quality and result of the course. In such cases sufficient PCs for use by one or two trainees will be required. In addition, a video player will be required when using videos in the teaching program.

A. Classroom
Class room shall be of minimum area 1.5 sq.m x number of trainees and equipped with a white / black board, overhead / LCD projector / Video player/ P.C/Laptop.

B. Cargo Handling Simulator
The Oil Tanker Cargo and Ballast Handling simulator may be used for familiarization with cargo equipment and instrumentation of an oil tanker but it is not obligatory.

The teaching aids required are mentioned under paragraph 14.

3.2. Use of Simulators

The revised STCW Convention sets standards regarding the performance and use of simulators for mandatory training, assessment or demonstration of competence. The general performance standards for simulators used in training and for simulators used in assessment of competence are given in Section A-I/12. Section B-1/12 provides guidance on the use of simulators in these activities. Simulator -based training and assessment is not a mandatory requirement for this basic oiltanker training program. However, it is widely recognized that well-designed lessons and exercises can improve the effectiveness of training and shorten training times compared to traditional methods.
If using simulator-based training, instructors should ensure that the aims and objective of these sessions are defined within the overall training program and that tasks are selected so as to relate as closely as possible to shipboard tasks and practices. Instructors should refer to STCW, Section A-I/12, Part 2.

Those topics in the Course Outline marked with an asterisk (*)may be taught on a simulator.

4. COURSE DETAILS

4.1. Course duration: 5days (30.5 hrs.)
4.2. Course outline: As per Annexure 2

5. HOLIDAYS

5.1. Sundays shall be holidays.
5.2. Independence Day (15th August) and Republic Day (26th January) shall be compulsory holidays.
5.3. Students shall normally enjoy the holidays observed by the Govt. of the state in which the institute is located.

6. FACULTY REQUIREMENT

6.1. Qualifications and experience of Training Staff

6.1.1 The faculty shall hold a Certificate of competency as Master (FG) OR MEO Class I, issued or recognized by the Government of India;

AND HAVE

at least 3years service on Merchant ships of which at least one year should have been in the rank of Chief Officer or 2nd Engineer and shall have at least three months sea experience on Oil tanker in a managerial rank.

6.2. The Course-faculty shall have undergone an approved Advanced Training Program in Oil Tanker Cargo Operation.

6.3. Training of Trainers & Assessors Course:

As per DGS Order no: 1 of 2003.

6.4. Visiting faculty members: Qualifications and experience of visiting faculty members should be the same as that of regular faculty as specified above.

6.5. Age limit for regular faculty members:

As per DGS Order no: 5 of 2013.

7. FACULTY STRENGTH

7.1. Not less than two faculty (inclusive of the course-in-charge).
7.2. Minimum of 50% of the entire portion must be covered by permanent faculty.

8. COURSE DURATION

8.1 A total of 30.5 hours of lectures, including practical training and assessment.
8.2 Practical Tanker firefighting in a mock up using Foam and DCP installation (5 hours), are additional to this training, and to be conducted at a fire fighting complex.

9. ASSESSMENT

To be deemed pass in the course, the student shall meet the following requirement.

1. Minimum classroom / simulator attendance required is 90%. However relaxation in the same may be granted only as per DGS guidelines from time to time.
2. Assessment shall be conducted by way of a written test.
   Objective Type theory paper: Duration 0.5 hr – Pass Percentage 50%.
3. Practical exercises on Liquid Cargo Handling Simulator (Oil) may also be one of the assessment methods.

10. QUALITY STANDARDS

As per DGS Order no: 1 of 2003.

11. INSPECTIONS

As per DGS Order no: 1 of 2003.

12. COST OF INSPECTIONS

As per DGS Order no: 1 of 2003.

13. FEES TO GOVT.

As per DGS Order no: 1 of 2003.

14. TEACHING AIDS

A. Teaching Aids

A1 Instructor's Notes
A2 Case studies and exercises
A3 White board
A4 Overhead projector for power point presentations
A5 Video Player
A6 Oxygen Resuscitator
A7 Self Contained Breathing apparatus
A8 Portable oxygen meter
A9 Portable combustible-gas / multi-gas detector
A10 Portable tank-scope / Multi point flammable gas (infra- red gas analyzer)
A11 Personal multi-gas detector
A12 Tank evacuation equipment (harness, pulley, tackles)
A13 Oil Tanker Cargo & Ballast Water Handling Simulator (optional)

B. IMO References

1. SOLAS 1974, International Convention for the Safety of Life at Sea, 1974 (SOLAS 1974) Consolidated Edition 2009, (IMO-IIOE)
2. STC Was amended, including 2010 Manila amendments, International Convention on Standards of Training, Certification and Watchkeeping for Seafarers
3. MARPOL 73/78, International Convention for the Prevention of Pollution from Ships, Consolidated Edition 2011
4. Inert Gas Systems (IMO-860E)
5. Crude Oil Washing Systems (IMO-617E)
6. SOPEP Guidelines, Guidelines for the Development of Shipboard Oil Pollution Emergency Plans (SOPEP) (IMO-586E)
7. ISM Code, International Safety Management Code (ISM Code) (IMO-117E)
8. IMO Model Course 1.01 - Basic Training for Oiland Chemical Tanker Cargo Operations.

C. Reference Books

1. International Safety Guide for Oil Tankers and Terminals. 5th ed. [London, Witherby and Co. Ltd. (32/36 Aylesbury Street, London, EC1 R OET, U.K),1996] (ISBN 1-85609-081-7)
2. Safety in Oil Tankers, International Chamber of Shipping, Safety in Oil Tankers. (International Chamber of Shipping, Carthusian Court, 12 Carthusian Street, London, ECIM 6EZ, U.K.)

D. Other Recommended Textbooks (non-mandatory)

1. Basic Safe Tanker Handbook for Oil, Chemicals, LPG and LNG, Basic Safe Tanker Handbook for Oil, Chemicals, LPG and LNG, 2011, Capt. KSD Mistree, MAREX Publication, C - 209, Morya House, New Link Road, Andheri (w), Mumbai - 400 053. India.Tel.: 91 22 6734 9292 Fax: 91 22 6734 9222
2. Safe Oil Tanker operations, Safe Oil Tanker operations 2011 edition- Capt. KSD Mistree & Mr. B. K. Sharma. - MARINEX Publications. A-3, Silver Queen, Soonawala Agyari marg, Mumbai, India. e-mail: marinez1@hotmail.com Tel: 91 22 24465470
3. Ship to Ship Transfer Guide (Petroleum), International Chamber of Shipping/Oil Companies International Marine Forum, Ship to Ship Transfer Guide (Petroleum), 4th ed. (London, Witherby& Co. Ltd., 2005) (ISBN 1-85609-097-3)
4. Measures to Prevent Accidental Pollution, INTERTANKO, Measures to Prevent Accidental Pollution, 1990
5. Code of Safe Working Practices, PO Box 29, Norwich, NR3 1GNTelephone orders/General enquiries:0870 600 5522 Fax orders: 0870 600 5533E-mail: customer.services@tso.co.ukTextphone 0870 240 3701
6. Tanker Management Self Assessment, WitherbyPublications , 32/36 Aylesbury street London.. www.witherbys.com ISBN 10: 1905331231 ISBN 13: 9781905331239

E. Recommended Videos

For Oil Tankers VO(x)(At least three videos from below list)

VO1 Portable gas detection equipment calibration procedures

Available from: ***KARCO Website:http://www.karco.in***
e-mail ID:karco@karcoservices.com
Contact Person: Capt PraveshDiwan
Telephone: 91-22-67101229

VO2 Tanker safety depends on you

Available from: NATIONAL AUDIO VISUAL CENTER
National Technical Information Service
5301 Shawnee Rd, Alexandria,VA 22312
E-mail: orders@ntis.gov

VO3 Operation and maintenance of inert gas systems

VO4 The ship/shore interface – petroleum tankers

VO5 Tanker practices series

- cargo - part 4 Code No: 504

VO6 Personal safety on tankers (edition 2), Code No: 970

Available from: Videotel Marine International
84 Newman Street, London W1T 3EU, UK
Tel: +44(0) 20 72991800
Fax: +44(0) 207299 1818
E-mail: mail@videotelmail.com
URL: www.videotel.co.uk

VO7 Liquid Cargo Properties (Seagull CBT # 0032)

VO8 Crude Oil Washing (COW) (Seagull CBT # 0054)

VO9 ODME (Seagull CBT # 0055)

Annex 1

STCW Convention and Code as revised in 2010, Chapter V/1-1

Regulation V/1-1

Mandatory minimum requirements for the training and qualifications of masters, officers and ratings on oil tankers

1 Officers and ratings assigned specific duties and responsibilities related to cargo or cargo equipment on oil or chemical tankers shall hold a certificate in basic training for oil tanker cargo operations.

2 Every candidate for a certificate in basic training for oil tanker cargo operations shall have completed basic training in accordance with provisions of section A-VI/1 of the STCW Code and shall have completed:

.1 at least three months of approved seagoing service on oil or chemical tankers and meet the standard of competence specified in section A-V/1-1, paragraph 1 of the STCW Code; or

.2 an approved basic training for oil tanker cargo operations and meet the standard of competence specified in section A-V/1-1, paragraph 1 of the STCW Code.

3. Masters, chief engineer officers, chief mates, second engineer officers and any person with immediate responsibility for loading, discharging, care in transit, handling of cargo, tank cleaning or other cargo-related operations on oil tankers shall hold a certificate in advanced training for oil tanker cargo operations.

4. Every candidate for a certificate in advanced training for oil tanker cargo operations shall:

.1 meet the requirements for certification in basic training for oil tanker cargo operations; and

.2 while qualified for certification in basic training for oil tanker cargo operations, have:

.2.1 at least three months of approved seagoing service on oil tankers, or

.2.2 at least one month of approved onboard training on oil tankers in a supernumerary capacity, which includes at least three loading and three unloading operations and is documented in an approved training record book taking into account guidance in section B-V/1; and

.3 have completed approved advanced training for oil tanker cargo operations and meet the standard of competence specified in section A-V/1-1, paragraph 2 of the STCW Code.

5. Masters, chief engineer officers, chief mates, second engineer officers and any person with immediate responsibility for loading, discharging, care in transit, handling of cargo, tank cleaning or other cargo-related operations on chemical tankers shall hold a certificate in advanced training for chemical tanker cargo operations.

6. Every candidate for a certificate in advanced training for chemical tanker cargo operations shall:

.1 meet the requirements for certification in basic training for oil tanker cargo operations; and

.2 while qualified for certification in basic training for oil tanker cargo operations, have:

.2.1 at least three months of approved seagoing service on chemical tankers, or

.2.2 at least one month of approved onboard training on chemical tankers in a supernumerary capacity, which includes at least three loading and three unloading operations and is documented in an approved training record book taking into account guidance in section B-V/1; and

.3 have completed approved advanced training for chemical tanker cargo operations and meet the standard of competence specified in section A-V/1-1, paragraph 3 of the STCW Code.

7. Administrations shall ensure that a certificate of proficiency is issued to seafarers who are qualified in accordance with paragraph 2, 4 or 6 as appropriate, or that an existing certificate of competency or certificate of proficiency is duly endorsed.

Section A-V/1-1

Mandatory minimum requirements for the training and qualifications of masters, officers and ratings on oil tankers

Standard of competence

1. Every candidate for certification in basic training for oil tanker cargo operations shall be required to:
   .1 demonstrate the competence to undertake the tasks, duties and responsibilities listed in column 1 of table A-V/1-1-1; and
   .2 provide evidence of having achieved:
      .2.1 the minimum knowledge, understanding and proficiency listed in column 2 of table A-V/1-1-1, and
      .2.2 the required standard of competence in accordance with the methods for demonstrating competence and the criteria for evaluating competence tabulated in columns 3 and 4 of table A-V/1-1-1.
2. Every candidate for certification in advanced training for oil tanker cargo operations shall be required to:
   .1 demonstrate the competence to undertake the tasks, duties and responsibilities listed in column 1 of table A-V/1-1-2; and
   .2 provide evidence of having achieved:
      .2.1 the minimum knowledge, understanding and proficiency listed in column 2of table A-V/1-1-2, and
      .2.2 the required standard of competence in accordance with the methods for demonstrating competence and the criteria for evaluating competence tabulated in columns 3 and 4 of table A-V/1-1-2.
3. Every candidate for certification in advanced training for chemical tanker cargo operations shall be required to:
   .1 demonstrate the competence to undertake the tasks, duties and responsibilities listed in column 1 of table A-V/1-1-3; and
   .2 provide evidence of having achieved:
      .2.1 the minimum knowledge, understanding and proficiency listed in column 2of table A-V/1-1-3, and
      .2.2 the required standard of competence in accordance with the methods for demonstrating competence and the criteria for evaluating competence tabulated in columns 3 and 4 of table A-V/1-1-3.

Annex 2

COURSE OUTLINE

	Knowledge, understanding and proficiency		Total hours for lectures	Total hours for practical's
1	**Basic knowledge of tankers**			
	1.1	Types of oil tankers	0.50	
	1.2	Basic knowledge of ship arrangements of an oil tanker	0.50	
	1.3	Pumps and Eductors	0.50	
	1.4	Cargo heating System	0.50	
	1.5	Inert Gas System	0.50	
	1.6	Cargo measurement systems	0.50	
2	**Physical and chemical properties of oils**			
	2.1	Basic physics	0.50	
	2.2	Basic chemistry, chemical elements and groups	0.50	
	2.3	Physical properties of oil carried in bulk	0.50	
3	**Knowledge and understanding of tanker safety culture and safety management**		**1.0**	
4.1	**Hazards**			
	4.1.1	Health hazards	0.50	
	4.1.2	Environmental hazards	0.50	
	4.1.3	Explosion and Flammability hazards	0.50	
	4.1.4	Sources of ignition, Including electrostatic Hazards	0.50	
	4.1.5	Toxicity hazards	0.50	
4.2	**Basic knowledge of hazard controls**			
	4.2.1	Inerting, and monitoring techniques	0.50	
	4.2.2	Anti-static measures	0.50	
	4.2.3	Ventilation	0.25	
	4.2.4	Atmospheric control	0.25	
	4.2.5	Gas Testing	0.25	
	4.2.6	Understanding of Information on a Material Safety Data Sheet (MSDS)	0.25	0.50

	Knowledge, understanding and proficiency		Total hours for lectures	Total hours for practical's
5	**SAFETY**			
	5.1	Function and proper use of gas-measuring instruments (**)		1.0
	5.2	Proper use of safety equipment and protective devices including:		
	5.2.1	breathing apparatus and tank evacuating equipment(**)	0.50	0.50
	5.2.2	protective clothing and equipment(**)	0.50	
	5.2.3	resuscitators(**)	0.50	
	5.2.4	rescue and escape equipment(**)	0.50	
	5.3	**Basic knowledge of safe working practices and procedures in accordance with legislation and industry guidelines relevant to oil tankers**		
	5.3.1	Precautions to be taken when entering enclosed spaces	1.0	
	5.3.2	Precautions to be taken before and during "repair and maintenance" work in a gas dangerous area	0.25	
	5.3.3	Safety measures for hot and cold work	1.0	
	5.3.4	Electrical safety precautions	0.25	
	5.4	Basic knowledge of first aid with reference to a Material Safety Data Sheet (MSDS)	1.5	
6	**Fire Safety and Fire fighting operations**			
	6.1	Oil Tanker fire response organization and action to be taken (**)	1.5	
	6.2	Fire hazards associated with cargo handling and transportation of hazardous liquids in bulk	1.5	
	6.3	Fire-fighting agents used to extinguish oil fires (**)	0.50	
	6.4	Fixed fire-fighting foam operations (#)	0.25	2.0
	6.5	Portable fire-fighting foam operations(#)	0.25	1.0
	6.6	Fixed dry chemical powder operations (#)	0.25	2.0
	6.7	Spill containment in relation to fire-fighting operations	0.25	
7	**Cargo operations**			
	7.1	Cargo information	0.25	
	7.2	Inerting	0.25	
	7.3	Loading	1.0	
	7.4	Unloading	0.50	
	7.5	Tank cleaning	1.0	
	7.6	Purging and gas freeing	0.50	
8	**Emergencies For Oil Tankers**			
	8.1	Basic knowledge of emergency procedures, including emergency shutdown	0.50	
	8.2	Organizational structure	0.50	

	Knowledge, understanding and proficiency		Total hours for lectures	Total hours for practical's
	8.3	Alarms	0.25	
	8.4	Emergency procedures	0.50	
9	**Pollution Prevention for Oil Tankers**			
	9.1	Basic knowledge of the effects of oil pollution on human and marine life	0.25	
	9.2	Basic knowledge of shipboard procedures to prevent pollution	0.50	
	9.3	SOPEP (Shipboard Oil Pollution Emergency Plan) Measures to be taken in the event of spillage, including the need to: .1 report relevant information to the responsible persons .2 assist in implementing shipboard spill-containment procedures	0.50	
10	**Case Studies on oil tanker emergencies**			
	10.1	Fire and Explosion during unloading operations on an oil tanker	0.50	
11	**Discussions &Assessment**		1.0	
	Subtotals		**28.5**	**2**
	Total for the course			**30.5**

Notes:-
It is suggested that relevant topics which are marked with an Asterisk (*) may be taught on a simulator, if available..

The relevant topics which are marked with a double Asterisk (**) shall be demonstrated practically and may be supplemented with videos and CBT's.

Practical fire-fighting topics (6.4, 6.5, 6.6) covering 5 hrs, which are marked with a Hash (#) to be conducted separately in any facility which can conduct practical exercises and instruction under approved and truly realistic training conditions (e.g., fire-fighting mock up).The practical fire-fighting demonstrations is not part of this course and must be covered as an additional module in the Fire Prevention and Fire-fighting course. However, the theory section to be covered within the time table frame of this course.

ANNEX 3

COURSE TIME-TABLE

	1st Period (2.0 Hours) (0900 - 1100hrs)	2nd Period (2.0 Hours) (1115- 1315hrs)		3rd Period (1.5 Hours) (1345- 1515hrs)	4th Period (1.5 Hours) (1530- 1700hrs)
Day 1	1.1 Types of oil tankers 1.2 Basic knowledge of ship arrangements of an oil tanker 1.3 Pumps and Eductors	1.4 Cargo heating System 1.5 Inert Gas System 1.6 Cargo measurement systems		2.1Basic physics 2.2Basic chemistry, chemical elements and groups 2.3Physical properties of oil carried in bulk	3.0 Knowledge and understanding of tanker safety culture and safety management 4.1 Hazards 4.1.1 Health hazards
Day 2	4.1.2Environmental hazards 4.1.3Explosion and Flammability hazards 4.1.4Sources of ignition, Including electrostatic Hazards	4.1.5Toxicity hazards 4.2 Basic knowledge of hazard controls 4.2.1 Inerting, and monitoring techniques 4.2.2 Anti-static measures		4.2.3 Ventilation 4.2.4 Atmospheric control 4.2.5 Gas Testing 4.2.6 Understanding of Information on a Material Safety Data Sheet (MSDS)	5.0 SAFETY 5.1 Function and proper use of gas-measuring instruments (**) 5.2 Proper use of safety equipment and protective devices including: 5.2.1 breathing apparatus and tank evacuating equipment(**)
Day 3	5.2.2 protective clothing and equipment(**) 5.2.3 resuscitators(**) 5.2.4 rescue and escape equipment(**)	5.3 Basic knowledge of safe working practices and procedures in accordance with legislation and industry guidelines relevant to oil tankers 5.3.1 Precautions to be taken when entering enclosed spaces 5.3.2 Precautions to be taken before and during "repair and maintenance" work in a gas dangerous area 5.3.3 Safety measures for hot and cold work		5.3.3 Safety measures for hot and cold work 5.3.4 Electrical safety precautions	5.4. Basic knowledge of first aid with reference to a Material Safety Data Sheet (MSDS)
Day 4	a. Fire Safety and Fire fighting operations 6.1 Oil Tanker fire response organization and action to be taken (**)	6.2 Fire hazards associated with cargo handling and transportation of hazardous liquids in bulk		6.3 Fire-fighting agents used to extinguish oil fires (**) 6.4 Fixed fire-fighting foam operations (#) 6.5 Portable fire-fighting foam operations(#) 6.6 Fixed dry chemical powder	7.0 Cargo operations 7.1 Cargo information 7.2 Inerting 7.3 Loading

	1st Period (2.0 Hours) (0900 - 1100hrs)	2nd Period (2.0 Hours) (1115- 1315hrs)		3rd Period (1.5 Hours) (1345- 1515hrs)	4th Period (1.5 Hours) (1530- 1700hrs)
				operations (#) 6.7 Spill containment in relation to fire-fighting operations	
Day 5	7.4 Unloading 7.5 Tank cleaning	7.6 Purging and gas freeing 8.0 Emergencies For Oil Tankers 8.1 Basic knowledge of emergency procedures, including emergency shutdown 8.2 Organizational structure		8.3 Alarms 8.4 Emergency procedures 9.0 Pollution Prevention for Oil Tankers 9.1 Basic knowledge of the effects of oil pollution on human and marine life 9.2 Basic knowledge of shipboard procedures to prevent pollution	9.3 SOPEP Measures to be taken in the event of spillage, including the need to: .1 report relevant information to the responsible persons .2 assist in implementing shipboard spill-containment procedures 10 Case Studies on oil tanker Emergencies 10.1 Fire and Explosion during unloading operations on an oil tanker 11 Discussions &Assessment

ANNEX 4

Institute's LOGO

NAME and ADDRESS of the D. G. Approved Training Institution

INDOS No: Tel: Fax: E-mail:

Certificate No: _____

THIS IS TO CERTIFY THAT *[full name of candidate]*

Date of Birth ..... (dd/mm/yyyy)

Holder of C.D.C. No. ..... Passport No. .....

Certificate of Competency / Proficiency, (if any) Grade : ..... No. .....

Indian National Database of Seafarers (INDoS No.) .....

has successfully completed a training course in

BASIC TRAINING FOR OIL TANKER CARGO OPERATIONS

held from .....to ..... .

The course is approved by the Directorate General of Shipping and meets the training requirements laid down in Regulation V/1-1 paragraph 2, Section A-V/1-1 paragraph 1 and Table A-V/1-1-1 of the STCW Convention and Code as amended in 2010, related to Oil Tanker Cargo Operations.

The candidate has also met the additional criteria specified in the STCW Convention, applicable to the issue of the certificate.

This certificate is issued under the authority of the Directorate General of Shipping Ministry of Shipping, Government of India.

_____
Signature of Candidate

_____
Name and Signature of Course In-charge

Date of Issue : _____

Date of Expiry : UNLIMITED

Colour Photograph (35 mm x 35 mm)

Official Seal

_____
Name and Signature of Dean / Principal

Note: This is not a certificate of Proficiency in Basic Training in Oil Tanker Cargo Operations, This Certificate alongwith DGS approved "Practical Tanker Fire-fighting Course" certificate and other requisite documents must be submitted to the Administration or its authorised centre(s) to obtain the Certificate of Proficiency.

MANDATORY GUIDELINES FOR TRAINING INSTITUTES FOR OBTAINING APPROVAL FROM DIRECTORATE GENERAL OF SHIPPING

TO CONDUCT

BASIC TRAINING IN CHEMICAL TANKER CARGO OPERATIONS (Course ID 74)

To avoid unnecessary repetition, reference has been made herein to DGS Order no: 1 of 2003 (Guidelines for the conduct of Pre-Sea Training courses for Merchant Navy) Wherever appropriate.

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BASIC DETAILS OF THE COURSE

1.1. AIMS:

This course provides training to candidates to be duly qualified under Section A – V/1-1 of the STCW code with specific duties and responsibilities related to cargo or cargo equipment on chemical tankers. It comprises of a basic training programme appropriate to their duties, including basic training for chemical tanker safety, fire safety measures, pollution prevention, safe operational practices and obligations under applicable law and regulations. The course covers the competence requirements as given in the table A-V/1-1-1 related to chemical tankers, of the STCW Code adopted by the International Convention on Standards of Training, Certification and Watchkeeping for Seafarers, 1978 as amended in 2010.

1.2. Objective

Provided they hold an appropriate certificate and are otherwise qualified in accordance with regulation Section A-VI/1 of the International Convention on Standards of Training, Certification and Watchkeeping for Seafarers 1978, as amended, those successfully completing the course will be eligibleto carry out assigned specific duties and responsibilities related to cargo or cargo equipment on Chemical Tankers. The trainee shall:

- Be familiar with the equipment, instrumentation and controls used for cargo handling on an chemical tanker
- Have acquired greater awareness of the need of proper planning and the use of checklists involved in various cargo handling operations
- Have an enhanced awareness to apply proper and safe procedures at all times when carrying out the various operations on board chemical tankers
- Be able to identify operational problems and assist in solving them.
- Follow safety practices and protect the marine environment
- Be able to assist and co-ordinate actions during emergencies

These guidelines shall be applicable from 01.08.2015.

2. QUALIFICATION & ELIGIBILITY OF STUDENTS

2.1. Entry standards

This course is principally intended for candidates for certification for basic training for chemical tanker cargo operations as specified in section A-V/1-1 para 1 of the STCW Code as amended. The trainees shall have successfully completed approved Basic Safety Training course as per STCW Section A – VI/1, para 2, 3, Tables A – VI/1-1, A – VI/1-2, A-VI/1-3, A – VI/1-4.

2.2. Required attendance:

100% attendance is required for successful completion of the course.
However, in exceptional circumstances, a student is allowed absence of up to one day subject to his attending the lectures missed out during the next course at the same institute. The institute shall keep proper records of such cases.

2.3. Course intake limitations

The number of trainees should not exceed 24 and practical training should be undertaken in small groups of not more than eight.

3. INFRASTRUCTURE REQUIREMENT

3.1. Teaching facilities and equipment

Ordinary classroom facilities and an overhead projector are sufficient for most of the Course. However, dedicated CBT modules to be run on an ordinary PC as well as exercises on an operational, hands-on liquid cargo handling simulator, will greatly enhance the quality and result of the course. In such cases sufficient PCs for use by one or two trainees will be required. In addition, a video player will be required when using videos in the teaching program.

A. Classroom

Class room shall be of minimum area 1.5 sq.m x number of trainees and equipped with a white / black board, overhead / LCD projector / Video player/ P.C/Laptop.

B. Cargo Handling Simulator

The Chemical Tanker Cargo and Ballast Handling simulator may be used for familiarization with cargo equipment and instrumentation of a chemical tanker but it is not obligatory.

The teaching aids required are mentioned under paragraph 14.

3.2. Use of Simulators

The revised STCW Convention sets standards regarding the performance and use of simulators for mandatory training, assessment or demonstration of competence. The general performance standards for simulators used in training and for simulators used in assessment of competence are given in Section A-I/12. Section B-1/12 provides guidance on the use of simulators in these activities. Simulator -based training and assessment is not a mandatory requirement for this basic chemical tanker training program. However, it is widely recognized that well-designed lessons and exercises can improve the effectiveness of training and shorten training times compared to traditional methods.
If using simulator-based training, instructors should ensure that the aims and objective of these sessions are defined within the overall training program and that tasks are selected so as to relate as closely as possible to shipboard tasks and practices. Instructors should refer to STCW, Section A-I/12, Part 2.
Those topics in the Course Outline marked with an asterisk (*) may be taught on a simulator.

4. COURSE DETAILS

4.1. Course duration: 5 days (30.5 hrs.)
4.2. Course outline: As per Annexure 2

5. HOLIDAYS

5.1. Sundays shall be holidays.
5.2. Independence Day (15th August) and Republic Day (26th January) shall be compulsory holidays.
5.3. Students shall normally enjoy the holidays observed by the Govt. of the state in which the institute is located.

6. FACULTY REQUIREMENT

6.1. Qualifications and experience of Training Staff

6.1.1 The faculty shall hold a Certificate of competency as Master (FG) OR MEO Class I, issued or recognized by the Government of India.

AND HAVE

at least 3 years service on Merchant ships of which at least one year should have been in the rank of Chief Officer or 2nd Engineer and shall have at least three months sea experience on Chemical tanker in a managerial rank.

6.2. The Course-faculty shall have undergone an approved Advanced Training Program in Chemical Tanker Cargo Operation.

6.3. Training of Trainers & Assessors Course:
As per DGS Order no: 1 of 2003.

6.4. Visiting faculty members:
Qualifications and experience of visiting faculty members should be the same as that of regular faculty as specified above.

6.5. Age limit for regular faculty members:
As per DGS Order no: 5 of 2013.

7. FACULTY STRENGTH

7.1. Not less than two faculty (inclusive of the course-in-charge).
7.2. Minimum of 50% of the entire portion must be covered by permanent faculty.

8. COURSE DURATION

A total of 30.5 hours of lectures, including practical training and assessment.
Practical Tanker firefighting in a mock up using Foam and DCP installation (5 hours), are additional to this training, and to be conducted at a fire fighting complex.

9. ASSESSMENT

To be deemed pass in the course, the student shall meet the following requirement.

1. Minimum classroom / simulator attendance required is 90%. However relaxation in the same may be granted only as per DGS guidelines from time to time.
2. Assessment shall be conducted by way of a written test.
   Objective Type theory paper: Duration 0.5 hr – Pass Percentage 50%.
3. Practical exercises on Liquid Cargo Handling Simulator (Chemical) may also be one of the assessment methods.

10. QUALITY STANDARDS

As per DGS Order no: 1 of 2003.

11. INSPECTIONS

As per DGS Order no: 1 of 2003.

12. COST OF INSPECTIONS

As per DGS Order no: 1 of 2003.

13. FEES TO GOVT.

As per DGS Order no: 1 of 2003.

14. TEACHING AIDS

A. Teaching Aids

A1 Instructor's Notes
A2 Case studies and exercises
A3 White board
A4 Overhead projector for power point presentations
A5 Video Player
A6 Oxygen Resuscitator
A7 Self Contained Breathing apparatus
A8 Portable oxygen meter
A9 Portable combustible-gas / multi-gas detector
A10 Portable tank-scope / Multi point flammable gas (infra- red gas analyzer)
A11 Portable toxic-gas detector
A12 Chemical Absorption tubes for toxic-gas detector – 10 for different chemicals
A13 Personal multi-gas detector
A14 Tank evacuation equipment (harness, pulley, tackles)
A15 Chemical Suit
A16 Chemical Tanker Cargo & Ballast Water Handling Simulator (optional)

B. IMO References

1. SOLAS 1974, International Convention for the Safety of Life at Sea, 1974 (SOLAS 1974) Consolidated Edition 2009, (IMO-IIOE)
2. STC Was amended, including 2010 Manila amendments, International Convention on Standards of Training, Certification and Watchkeeping for Seafarers
3. MARPOL 73/78, International Convention for the Prevention of Pollution from Ships, Consolidated Edition 2011

4. Inert Gas Systems (IMO-860E)
5. MFAG with Chemical supplement for use in Accidents Involving Dangerous Goods (IMO 251 E)
6. BCH Code, Code for the Construction and Equipment of Ships Carrying Dangerous Chemicals in Bulk as amended (IMO-IC 772E)
7. IBC Code, International Code for the Construction and Equipment of Ships Carrying Dangerous Chemicals in Bulk (IBC Code), as amended (IMO-IC IOOE)
8. SOPEP Guidelines, Guidelines for the Development of Shipboard Pollution Emergency Plans (SOPEP) (IMO-586E)
9. ISM Code, International Safety Management Code (ISM Code) (IMO-117E)
10. IMO Model Course 1.01Basic Training for Oil and Chemical Tanker Cargo Operations.

C. Reference Books

1. International Safety Guide for Oil Tankers and Terminals. 5th ed. [London, Witherby and Co. Ltd. (32/36 Aylesbury Street, London, EC1 R OET, U.K),1996] (ISBN 1-85609-081-7)
2. Tanker Safety Guide (Chemicals), International Chamber of Shipping, Tanker Safety Guide (Chemicals), 3rd ed. (London, Witherby and Co. Ltd., 2002) (ISBN 0-948691-50-6)
3. Safety in Chemical Tankers, International Chamber of Shipping, Safety in Chemical Tankers (International Chamber of Shipping, Carthusian Court, 12 Carthusian Street, London, EC1M 6EZ, U.K.)

D. Other Recommended Textbooks (non-mandatory)

1. Basic Safe Tanker Handbook for Oil, Chemicals, LPG and LNG, Basic Safe Tanker Handbook for Oil, Chemicals, LPG and LNG, 2011, Capt. KSD Mistree, MAREX Publication, C - 209, Morya House, New Link Road, Andheri (w), Mumbai - 400 053. India.Tel.: 91 22 6734 9292 Fax: 91 22 6734 9222
2. Safe Oil Tanker operations, Safe Oil Tanker operations 2011 edition- Capt. KSD Mistree& Mr. B. K. Sharma. - MARINEX Publications. A-3, Silver Queen, Soonawala Agyari marg,Mumbai, India. e-mail: marinez1@hotmail.com Tel: 91 22 24465470
3. Ship to Ship Transfer Guide (Petroleum), International Chamber of Shipping/Oil Companies International Marine Forum, Ship to Ship Transfer Guide (Petroleum), 4th ed. (London, Witherby & Co. Ltd., 2005) (ISBN 1-85609-097-3)

4. CHRIS manual II, U.S. Coast Guard, CHRIS, Manual II, Hazardous Chemical Data, (Washington, D.C., Government Printing Office, 1988)
5. Condensed Chemical Dictionary, N. I. Sax, and R. J. Lewis, Sr., Hawley's Condensed Chemical Dictionary, 13th ed. (New York, Van Nostrand Reinhold, 1977) (ISBN 0-442-011318)
6. Tank Cleaning Guide, Tank Cleaning Guide, 6th ed. (Rotterdam, B.V. Chemical Laboratory "Dr. A. Verwey", 1998)
7. Drager-Tube Handbook, Drager-Tube Handbook 11th ed. (Drager Sicherheitstechnik GmbH, Revalstrasse 1, D-23560 Lubeck, Germany, 1998) (ISBN 3-926762-06-3)
8. Measures to Prevent Accidental Pollution, INTERTANKO, Measures to Prevent Accidental Pollution, 1990
9. Code of Safe Working Practices, PO Box 29, Norwich, NR3 1GNTelephone orders/General enquiries:0870 600 5522 Fax orders: 0870 600 5533E-mail: customer.services@tso.co.ukTextphone 0870 240 3701
10. Tanker Management Self Assessment, Witherby Publications , 32/36 Aylesbury street London.. www.witherbys.com ISBN 10: 1905331231 ISBN 13: 9781905331239

E. Recommended Videos

For Chemical Tankers VC(x)(At least three videos from below list)

VC1 FRAMO cargo pumping system - instruction

VC2 Operation of FRAMO cargo pumping system
Available from: Head Office- Frank Mohn Services AS,
PO Box 98, Slatthaug, 5851 Bergen, Norway.
Phone: +4755999000.
URL: www.framo.no

VC3 Static electricity on board tankers - DVD

VC4 Nitrogen on board chemical tankers - DVD

VC5 Explosion on board a laden chemical tanker – DVD

Available from: ***KARCO Website:http://www.karco.in***
e-mail ID:karco@karcoservices.com
Contact Person: Capt.Pravesh Diwan
Telephone: 91-22-67101229

VC6 Chemical tank cleaning & inspection (edition 2) Code No: 950

VC7 Vapour emission control Code No: 1118

VC8 Don't gamble with safety on chemical tankers Code No: 595

Annex 1

STCW Convention and Code as revised in 2010, Chapter V/1-1

Regulation V/1-1

Mandatory minimum requirements for the training and qualifications of masters, officers and ratings on chemical tankers

1 Officers and ratings assigned specific duties and responsibilities related to cargo or cargo equipment on chemical tankers shall hold a certificate in basic training for chemical tanker cargo operations.

2 Every candidate for a certificate in basic training for chemical tanker cargo operations shall have completed basic training in accordance with provisions of section A-VI/1 of the STCW Code and shall have completed:

.1 at least three months of approved seagoing service on chemical tankers and meet the standard of competence specified in section A-V/1-1, paragraph 1 of the STCW Code; or

.2 an approved basic training for chemical tanker cargo operations and meet the standard of competence specified in section A-V/1-1, paragraph 1 of the STCW Code.

3. Masters, chief engineer officers, chief mates, second engineer officers and any person with immediate responsibility for loading, discharging, care in transit, handling of cargo, tank cleaning or other cargo-related operations on oil tankers shall hold a certificate in advanced training for oil tanker cargo operations.

4. Every candidate for a certificate in advanced training for oil tanker cargo operations shall:

.1 meet the requirements for certification in basic training for chemical tanker cargo operations; and

.2 while qualified for certification in basic training for chemical tanker cargo operations, have:

.2.1 at least three months of approved seagoing service on oil tankers, or

.2.2 at least one month of approved onboard training on oil tankers in a supernumerary capacity, which includes at least three loading and three unloading operations and is documented in an approved training record book taking into account guidance in section B-V/1; and

.3 have completed approved advanced training for oil tanker cargo operations and meet the standard of competence specified in section A-V/1-1, paragraph 2 of the STCW Code.

5. Masters, chief engineer officers, chief mates, second engineer officers and any person with immediate responsibility for loading, discharging, care in transit, handling of cargo, tank cleaning or other cargo-related operations on chemical tankers shall hold a certificate in advanced training for chemical tanker cargo operations.

6. Every candidate for a certificate in advanced training for chemical tanker cargo operations shall:

.1 meet the requirements for certification in basic training for chemical tanker cargo operations; and

.2 while qualified for certification in basic training for chemical tanker cargo operations, have:

.2.1 at least three months of approved seagoing service on chemical tankers, or

.2.2 at least one month of approved onboard training on chemical tankers in a supernumerary capacity, which includes at least three loading and

three unloading operations and is documented in an approved training record book taking into account guidance in section B-V/1; and

.3 havecompleted approved advanced training for chemical tanker cargo operationsand meet the standard of competence specified in section A-V/1-1, paragraph 3 of the STCW Code.

7. Administrations shall ensure that a certificate of proficiency is issued to seafarers who are qualified in accordance with paragraph 2, 4 or 6 as appropriate, or that an existing certificate of competency or certificate of proficiency is duly endorsed.

Section A-V/1-1

Mandatory minimum requirements for the training and qualifications of masters, officers and ratings on chemical tankers

Standard of competence

1. Every candidate for certification in basic training for chemical tanker cargo operations shall be required to:
   .1 demonstrate the competence to undertake the tasks, duties and responsibilities listed in column 1 of table A-V/1-1-1; and
   :2 provide evidence of having achieved:
      .2.1 the minimum knowledge, understanding and proficiency listed in column 2 of table A-V/1-1-1, and
      .2.2 the required standard of competence in accordance with the methods for demonstrating competence and the criteria for evaluating competence tabulated in columns 3 and 4 of table A-V/1-1-1.
2. Every candidate for certification in advanced training for oil tanker cargo operations shall be required to:
   .1 demonstrate the competence to undertake the tasks, duties and responsibilities listed in column 1 of table A-V/1-1-2; and
   .2 provide evidence of having achieved:
      .2.1 the minimum knowledge, understanding and proficiency listed in column 2of table A-V/1-1-2, and
      .2.2 the required standard of competence in accordance with the methods fordemonstrating competence and the criteria for evaluating competencetabulated in columns 3 and 4 of table A-V/1-1-2.
3. Every candidate for certification in advanced training for chemical tanker cargooperations shall be required to:
   .1 demonstrate the competence to undertake the tasks, duties and responsibilitieslisted in column 1 of table A-V/1-1-3; and
   .2 provide evidence of having achieved:
      .2.1 the minimum knowledge, understanding and proficiency listed in column 2of table A-V/1-1-3, and
      .2.2 the required standard of competence in accordance with the methods fordemonstrating competence and the criteria for evaluating competencetabulated in columns 3 and 4 of table A-V/1-1-3.

Annex 2

COURSE OUTLINE

	Knowledge, understanding and proficiency		Total hours for lectures	Total hours for practicals
1	**Basic knowledge of tankers**			
	1.1	Types of chemical tankers	0.50	
	1.2	Basic knowledge of ship arrangements of a Chemical Tanker(*)	0.50	
	1.3	Pumps and Eductors	0.50	
	1.4	Cargo heating and cooling System	0.50	
	1.5	Inert Gas Systems	0.50	
	1.6	Cargo measurement systems	0.50	
2	**Physical and chemical properties of chemicals**			
	2.1	Basic physics	0.50	
	2.2	Basic chemistry, chemical elements and groups	0.50	
	2.3	Physical properties of chemicals carried in bulk	0.50	
3	**Knowledge and understanding of tanker safety culture and safety management**		**1.5**	
4	**Hazards**			
	4.1	Health hazards	0.50	
	4.2	Environmental hazards	0.50	
	4.3	Reactivity hazards	0.25	
	4.4	Corrosion hazards	0.25	
	4.5	Explosion and Flammability hazards	0.50	
	4.6	Sources of ignition, Including electrostatic Hazards	0.50	
	4.7	Toxicity hazards	0.25	
	4.8	Vapour leaks and clouds	0.25	
5	**Basic knowledge of hazard controls**			
	5.1	Inerting, water padding, drying agents and monitoring techniques	0.50	
	5.2	Anti-static measures	0.50	
	5.3	Ventilation	0.50	
	5.4	Cargo segregation	0.25	
	5.5	Cargo inhibition	0.25	
	5.6	Importance of cargo Compatibility	0.50	
	5.7	Atmospheric control	0.50	
	5.8	Gas Testing	0.50	
	5.9	Understanding of Information on a Material Safety Data Sheet (MSDS)	0.50	0.50

		Knowledge, understanding and proficiency	Total hours for lectures	Total hours for practicals
6	**SAFETY**			
	6.1	Function and proper use of gas-measuring instruments (**)		0.50
	6.2	Proper use of safety equipment and protective devices including:	0.50	0.50
	6.3	breathing apparatus and tank evacuating equipment(**)	0.50	0.50
	6.4	protective clothing and equipment(**)	0.50	
	6.5	resuscitators(**)	0.50	
	6.6	rescue and escape equipment(**)	0.50	
	6.7	Basic knowledge of safe working practices and procedures in accordance with legislation and industry guidelines relevant to chemical tankers	0.50	
	6.8	Precautions to be taken when entering enclosed spaces	1.0	
	6.9	Precautions to be taken before and during "repair and maintenance" work in a gas dangerous area	0.50	
	6.10	Safety measures for hot and cold work	1.5	
	6.11	Electrical safety precautions	0.50	
	6.12	Basic knowledge of first aid with reference to a Material Safety Data Sheet (MSDS)	1.5	
7	**Fire Safety and Fire fighting operations**			
	7.1	Chemical Tanker fire response organization and action to be taken (**)	0.50	
	7.2	Fire hazards associated with cargo handling and transportation of hazardous and noxious liquids in bulk	0.50	
	7.3	Fire-fighting agents used to extinguish chemical fires (**)	0.25	
	7.4	Fixed fire-fighting foam operations (#)	0.25	2.0
	7.5	Portable fire-fighting foam operations(#)	0.25	1.0
	7.6	Fixed dry chemical powder operations (#)	0.25	2.0
	7.7	Spill containment in relation to fire-fighting operations	0.50	
8	**Cargo operations**			
	8.1	For Chemical Tankers Cargo information	0.25	
	8.2	Loading	0.50	
	8.3	Unloading	0.50	
	8.4	Tank cleaning and gas-freeing	0.25	

	Knowledge, understanding and proficiency	Total hours for lectures	Total hours for practicals
9	**Emergencies For Chemical Tankers**		
9.1	Basic knowledge of emergency procedures, including emergency shutdown	0.50	
9.2	Organizational structure	0.25	
9.3	Alarms	0.25	
9.4	Emergency procedures	0.50	
10	**Pollution Prevention for Chemical Tankers**		
10.1	Basic knowledge of the effects of chemical pollution on human and marine life	0.25	
10.2	Basic knowledge of shipboard procedures to prevent pollution	0.25	
10.3	SMPEP (Shipboard Marine Pollution Emergency Plan)	0.25	
10.4	Measures to be taken in the event of spillage, including the need to: .1 report relevant information to the responsible persons .2 assist in implementing shipboard spill-containment procedures	0.25	
11	**Case Studies on NLS ship emergencies**	0.50	
12	**Discussions &Assessment**	0.50	
	Subtotals	**28.5**	**2**
	Total for the course		**30.5**

Notes:-

It is suggested that relevant topics which are marked with an Asterisk (*) may be taught on a simulator, if available..

The relevant topics which are marked with a double Asterisk (**) shall be demonstrated practically and may be supplemented with videos and CBT's.

Practical fire-fighting topics (7.4, 7.5, 7.6) covering 5 hrs, which are marked with a Hash (##) to be conducted separately in any facility which can conduct practical exercises and instruction under approved and truly realistic training conditions (e.g., fire-fighting mock up).The practical fire-fighting demonstrations is not part of this course and must be covered as an additional module in the Fire Prevention and Fire-fighting course. However, the theory section to be covered within the time table frame of this course.

The 5 hrs demonstration in a fire fighting mock up is not included in this time table.

ANNEX 3

COURSE TIME-TABLE

	1st Period (2.0 Hours) (0900 - 1100hrs)	2nd Period (2.0 Hours) (1115- 1315hrs)		3rd Period (1.5 Hours) (1345- 1515hrs)	4th Period (1.5 Hours) (1530- 1700hrs)
Day 1	1.1 Types of Chemical tankers 1.2 Basic knowledge of ship arrangements of a Chemical Tanker (*) 1.3 Pumps and Eductors	1.4 Cargo heating and cooling System 1.5 Inert Gas Systems 1.6 Cargo measurement systems	Lunch Break (1315– 1345hrs)	2.1 Basic physics 2.2 Basic chemistry, chemical elements and groups 2.3 Physical properties of chemicals carried in bulk	3.0 Knowledge and understanding of tanker safety culture and safety management
Day 2	4.1 Health hazards 4.2 Environmental hazards 4.3 Reactivity hazards 4.4 Corrosion hazards	4.5 Explosion and Flammability hazards 4.6 Sources of ignition, Including electrostatic Hazards 4.7 Toxicity hazards 4.8 Vapour leaks and clouds		5.1 Inerting, water padding, drying agents and monitoring techniques 5.2 Anti-static measures 5.3 Ventilation	5.4 Cargo segregation 5.5 Cargo inhibition 5.6 Importance of cargo Compatibility 5.7 Atmospheric control
Day 3	5.8 Gas Testing 5.9 Understanding of Information on a Material Safety Data Sheet (MSDS)	6.1 Function and proper use of gas-measuring instruments (**) 6.2 Proper use of safety equipment and protective devices including:		6.3 breathing apparatus and tank evacuating equipment(**) 6.4 protective clothing and equipment(**)	6.5 resuscitators(**) 6.6 rescue and escape equipment(**) 6.7 Basic knowledge of safe working practices and procedures in accordance with legislation and industry guidelines relevant to chemical tankers
Day 4	6.8 Precautions to be taken when entering enclosed spaces 6.9 Precautions to be taken before and during "repair and maintenance" work in a gas dangerous area	6.10 Safety measures for hot and cold work	Lunch Break (1230 – 1300 hrs)	6.12 Basic knowledge of first aid with reference to a Material Safety Data Sheet (MSDS)	6.11 Electrical safety precautions 7.1 Chemical Tanker fire response organization and action to be taken (**) 7.2 Fire hazards associated with cargo handling and transportation of hazardous and noxious liquids in bulk
Day 5	7.3 Fire-fighting agents used to extinguish chemical fires (**) 7.4 Fixed fire-fighting foam operations (#) 7.5 Portable fire-fighting foam operations(#) 7.6 Fixed dry chemical powder operations	8.1 Cargo information 8.2 Loading 8.3 Unloading 8.4 Tank cleaning and gas-freeing		10.1 Basic knowledge of the effects of chemical pollution on human and marine life 10.2 Basic knowledge of shipboard procedures to	12.0 Discussions &Assessment

	1st Period (2.0 Hours) (0900 - 1100hrs)	2nd Period (2.0 Hours) (1115- 1315hrs)		3rd Period (1.5 Hours) (1345- 1515hrs)	4th Period (1.5 Hours) (1530- 1700hrs)
	(#) 7.7 Spill containment in relation to fire-fighting operations			prevent pollution 10.3 SMPEP 10.4 Measures to be taken in the event of spillage, including the need to: .1 report relevant information to the responsible persons .2 assist in implementing shipboard spill-containment procedures 11.0 Case Studies NLS ship Emergencies	

Institute's LOGO

NAME and ADDRESS of the D. G. Approved Training Institution

INDOS No: Tel: Fax: E-mail:

THIS IS TO CERTIFY THAT *[full name of candidate]* **Certificate No:** _____

Date of Birth ..... (dd/mm/yyyy)

Holder of C.D.C. No. ..... Passport No. .....

Certificate of Competency / Proficiency, (if any) Grade : ..... No. .....

Indian National Database of Seafarers (INDoS No.) .....

has successfully completed a training course in

BASIC TRAINING FOR CHEMICAL TANKER CARGO OPERATIONS

held from .....to ..... .

The course is approved by the Directorate General of Shipping and meets the training requirements laid down in Regulation V/1-1 paragraph 2, Section A-V/1-1 paragraph 1 and Table A-V/1-1-1 of the STCW Convention and Code as amended in 2010, related to Chemical Tanker Cargo Operations.

The candidate has also met the additional criteria specified in the STCW Convention, applicable to the issue of the certificate.

This certificate is issued under the authority of the Directorate General of Shipping Ministry of Shipping, Government of India.

_____
Signature of Candidate

_____
Name and Signature of Course In-charge

Date of Issue : _____

Date of Expiry : UNLIMITED

Colour Photograph
(35 mm x 35 mm)

Official Seal

_____
Name and Signature of Dean / Principal

Note: This is not a certificate of Proficiency in Basic Training in Chemical Tanker Cargo Operations, This Certificate alongwith DGS approved "Practical Tanker Fire-fighting Course" certificate and other requisite documents must be submitted to the Administration or its authorised centre(s) to obtain the Certificate of Proficiency.

MANDATORY GUIDELINES FOR TRAINING INSTITUTES FOR OBTAINING APPROVAL FROM DIRECTORATE GENERAL OF SHIPPING

TO CONDUCT

BASIC TRAINING FOR LIQUEFIED GAS TANKER CARGO OPERATIONS (Course ID 75)

To avoid unnecessary repetition, reference has been made herein to DGS Order no: 1 of 2003 (Guidelines for the conduct of Pre-Sea Training courses for Merchant Navy) Wherever appropriate.

TABLE OF CONTENTS

BASIC DETAILS OF THE COURSE.

1.1. AIMS:

This course provides training to candidates to be duly qualified under Section A – V/1-2 of the STCW code with specific duties and responsibilities related to cargo or cargo equipment on gas tankers. It comprises of a basic training programme appropriate to their duties, including basic training for gas tanker safety, fire safety measures, pollution prevention, safe operational practices and obligations under applicable law and regulations. The course covers the competence requirements as given in the table A-V/1-2-1 of the STCW Code adopted by the International Convention on Standards of Training, Certification and Watchkeeping for Seafarers, 1978 as amended in 2010.

1.2. Objective

Provided they hold an appropriate certificate and are otherwise qualified in accordance with regulation Section A-VI/1 of the International Convention on Standards of Training, Certification and Watchkeeping for Seafarers 1978, as amended, those successfully completing the course will be eligible to carry out assigned specific duties and responsibilities related to cargo or cargo equipment on Gas tankers. The trainee will be:

- Be familiar with the equipment, instrumentation and controls used for cargo handling on a gas tanker
- Have acquired greater awareness of the need of proper planning and the use of checklists involved in various cargo handling operations
- Have an enhanced awareness to apply proper and safe procedures at all times when carrying out the various operations on board gas tankers
- Be able to identify operational problems and assist in solving them
- Follow safety practices and protect the marine environment
- Be able to assist and co-ordinate actions during emergencies

These guidelines shall be applicable from 01.08.2015.

2. QUALIFICATION & ELIGIBILITY OF STUDENT

2.1. Entry standards

This course is principally intended for candidates for certification for basic training for gas tanker cargo operations as specified in section A-V/1-2 para 1 of the STCW Code as amended.

The trainees shall have successfully completed approved Basic Safety Training course as per STCW Section A – VI/1, para 2, 3, Tables A – VI/1-1, A – VI/1-2, A- VI/1-3, A – VI/1-4.

2.2. Required attendance:

100% attendance is required for successful completion of the course.

However, in exceptional circumstances, a student is allowed absence of up to one day subject to his attending the lectures missed out during the next course at the same institute. The institute shall keep proper records of such cases.

2.3. Course intake limitations

The number of trainees should not exceed 24 and practical training should be undertaken in small groups of not more than eight.

3. INFRASTRUCTURE REQUIREMENT

3.1. Teaching facilities and equipment

Ordinary classroom facilities and an overhead projector are sufficient for most of the Course. However, dedicated CBT modules to be run on an ordinary PC as well as exercises on an operational, hands-on liquid cargo handling simulator, will greatly enhance the quality and result of the course. In such cases sufficient PCs for use by one or two trainees will be required. In addition, a video player will be required when using videos in the teaching program.

A. Classroom
Class room shall be of minimum area 1.5 sq.m x number of trainees and equipped with a white / black board, overhead / LCD projector / Video player/ P.C/Laptop.

B. Cargo Handling Simulator
The Liquefied Gas Tanker Cargo-Handling simulator may be used for familiarization with cargo equipment and instrumentation of a gas tanker, but it is not obligatory.

The teaching aids required are mentioned under paragraph 14.

3.2. Use of Simulators

The revised STCW Convention sets standards regarding the performance and use of simulators for mandatory training, assessment or demonstration of competence. The general performance standards for simulators used in training and for simulators used in assessment of competence are given in Section A-I/12. Section B-1/12 provides guidance on the use of simulators in these activities. Simulator -based training and assessment is not a mandatory requirement for this basic gas tanker training program. However, it is widely recognized that well-designed lessons and exercises can improve the effectiveness of training and shorten training times compared to traditional methods.
If using simulator-based training, instructors should ensure that the aims and objective of these sessions are defined within the overall training program and that tasks are selected so as to relate as closely as possible to shipboard tasks and practices. Instructors should refer to STCW, Section A-I/12, Part 2.
Those topics in the Course Outline marked with an asterisk (*)may be taught on a simulator.

4. COURSE DETAILS

4.1. Course duration: 5 days (30 hrs.)
4.2. Course outline: As per Annexure 2

5. HOLIDAYS

5.1. Sundays shall be holidays.

5.2. Independence Day (15th August) and Republic Day (26th January) shall be compulsory holidays.

5.3. Students shall normally enjoy the holidays observed by the Govt. of the state in which the institute is located.

6. FACULTY REQUIREMENT

6.1. Qualifications and experience of Training Staff

6.1.1 The faculty shall hold a Certificate of competency as Master (FG) OR MEO Class I, issued or recognized by the Government of India.

AND HAVE

at least 3years service on Merchant ships of which at least one year should have been in the rank of Chief Officer or 2nd Engineer and shall have at least three months sea experience on Gas tanker in a managerial rank.

6.2. The Course-faculty shall have undergone an approved Advanced Training Program in Gas Tanker Cargo Operation.

6.3. Training of Trainers & Assessors Course:
As per DGS Order no: 1 of 2003.

6.4. Visiting faculty members:
Qualifications and experience of visiting faculty members should be the same as that of regular faculty as specified above.

6.5. Age limit for regular faculty members:
As per DGS Order no: 5 of 2013.

7. FACULTY STRENGTH

7.1. Not less than two faculty (inclusive of the course-in-charge).
7.2. Minimum of 50% of the entire portion must be covered by permanent faculty.

8. COURSE DURATION

A total of 30 hours of lectures, including practical training and assessment.
Practical Tanker firefighting in a mock up using Foam and DCP installation (3 hours), are additional to this training, and to be conducted at a fire fighting complex.

9. ASSESSMENT

To be deemed pass in the course, the student shall meet the following requirement.

1. Minimum classroom / simulator attendance required is 90%. However relaxation in the same may be granted only as per DGS guidelines from time to time.
2. Assessment shall be conducted by way of a written test.
   Objective Type theory paper: Duration 0.5 hr – Pass Percentage 50%.

3. Practical exercises on Liquid Cargo Handling Simulator (Gas) may also be one of the assessment methods.

10. QUALITY STANDARDS

As per DGS Order no: 1 of 2003.

11. INSPECTIONS

As per DGS Order no: 1 of 2003.

12. COST OF INSPECTIONS

As per DGS Order no: 1 of 2003.

13. FEES TO GOVT.

As per DGS Order no: 1 of 2003.

14. TEACHING AIDS

A. Teaching Aids

A1 Instructor's Notes
A2 Case studies and exercises
A3 White board
A4 Overhead projector for power point presentations
A5 Video Player
A6 Oxygen Resuscitator
A7 Self-Contained Breathing apparatus
A8 Portable oxygen meter
A9 Portable combustible-gas / multi-gas detector
A10 Portable tank-scope / Multi point flammable gas (infra- red gas analyzer)
A11 Portable toxic-gas detector
A12 Chemical Absorption tubes for toxic-gas detector – 10 for different chemical gases
A13 Personal multi-gas detector
A14 Tank evacuation equipment (Harness, Pulley, tackles)
A15 Gas Suit
A16 Gas Tanker Cargo Handling Simulator (optional)

B. IMO References

1. SOLAS 1974, International Convention for the Safety of Life at Sea, 1974 (SOLAS 1974) as amended
2. STCW 78 as amended, International Convention on Standards of Training, Certification and Watchkeeping for Seafarers,
3. MARPOL 73/78, International Convention for the Prevention of Pollution from Ships, 1973/1978 (MARPOL 73/78) Consolidated Edition 2011
4. MFAG Medical First Aid Guide for Use in Accidents Involving Dangerous Goods (IMO-251E)
5. IGC Code, International Code for the Construction and Equipment of Ships Carrying liquefied gases in Bulk (IGC Code), as amended (IMO-100E)
6. ISM Code, International Safety Management Code (ISM Code) (IMO-117E)
7. IMO Model Course 1.04 – Basic Training for Gas Tanker Cargo Operations

C. Reference Books / Textbooks

1. SIGTTO, Liquefied Gas Handling Principles on Ships and in Terminals, 3rd ed. (London, Witherby and Company Ltd.)
2. Tanker Safety Guide Liquefied Gas, International Chamber of Shipping, 2nd ed. 95.

D. Other Recommended (non-mandatory)

1. Basic Tanker Work for Oil, Chemicals, LPG and LNG, Ed.2013 (Capt. KSD Mistree, MEHEREX Publication)
2. Ship to Ship Transfer Guide (Liquefied Gas), International Chamber of Shipping/Oil Companies International Marine Forum, (London, Witherbyand Co. Ltd., 2005)
3. Draeger-Tube Handbook, 11th ed. (Drager Sicherheitstechnik GmbH, Revalstrasse 1, D-23560 Lubeck, Germany, 1998) (ISBN 3-926762-06-3)
4. Code of Safe Working Practices, PO Box 29, Norwich, NR3 1GNTelephone orders/General enquiries:0870 600 5522 Fax orders: 0870 600 5533E-mail: customer.services@tso.co.ukTextphone 0870 240 3701
5. Liquefied Gas Carriers : Your Personal Safety Guide – SIGTTO, 2nd Edition – December 2012. ISBN No: 13:978-1-85609-572-3
6. LNG Operational practice Witherbys Publishing, Seamanship International, I32 /36 Aylesbury street London. www.witherbys.comISBN 1856093212
7. Tanker safety Training (Liquefied Gas) Specialized Level Witherbys Publishing, Seamanship International I32/36 Aylesbury street London.www.witherbys.com, ISBN-10:1856093417
8. LPG Shipping Suggested Competency Standards, SIGTTO, Witherbys Seamanship International, Jan 2008 edition (www.witherbys.com)
9. LNG Shipping Suggested Competency Standards, SIGTTO, Witherbys Seamanship International, 2nd edition, Dec 2008 (www.witherbys.com)

E. **Recommended Videos**(Any three videos from the below list)

VG1. An introduction to Liquefied Gas Carriers (Catalogue code 103)
VG2. Cargo fire fighting on Liquefied Gas Carriers. (Catalogue code 254)
VG3. Portable Gas detectors. (Catalogue code 650)
VG4. The chemistry of liquefied gases.
VG5. The physics of liquefied gases

Available from:
Videotel Marine International
84 Newman Street, London W1T 3EU, UK
Tel: +44(0) 20 72991800
Fax: +44(0) 207299 1818
e-mail: mail@videotelmail.com
URL: www.videotel.co.uk

VG6. Low temperature insulation on gas carriers (CBT#0099)
VG7. Gas measurement (CBT#0048)

Available from:
Seagull AS
Gamleveien 36
P.O. Box 1062
N-3194 Horten, Norway
Phone: +47 33 03 09 10
Fax: +47 33 04 62 79
Email: seagull@sgull.com

Annex 1

STCW Convention and Code as revised in 2010, Chapter V/1-2

Regulation V/1-2

Mandatory minimum requirements for the training and qualifications of masters, officers and ratings on liquefied gas tankers

1 Officers and ratings assigned specific duties and responsibilities related to cargo or cargo equipment on liquefied gas tankers shall hold a certificate in basic training for liquefied gas tanker cargo operations.

2 Every candidate for a certificate in basic training for liquefied gas tanker cargo operations shall have completed basic training in accordance with provisions of section A-VI/1 of the STCW Code and shall have completed:

.1 at least three months of approved seagoing service on liquefied gas tankers and meet the standard of competence specified in section A-V/1-2, paragraph 1 of the STCW Code; or

.2 an approved basic training for liquefied gas tanker cargo operations and meet the standard of competence specified in section A-V/1-2, paragraph 1 of the STCW Code.

3 Masters, chief engineer officers, chief mates, second engineer officers and any person with immediate responsibility for loading, discharging, care in transit, handling of cargo, tank cleaning or other cargo-related operations on liquefied gas tankers shall hold a certificate in advanced training for liquefied gas tanker cargo operations.

4 Every candidate for a certificate in advanced training for liquefied gas tanker cargo operations shall:

.1 meet the requirements for certification in basic training for liquefied gas tanker cargo operations; and

.2 while qualified for certification in basic training for liquefied gas tanker cargo operations, have:

.2.1 at least three months of approved seagoing service on liquefied gas tankers, or

.2.2 at least one month of approved onboard training on liquefied gas tankers in a supernumerary capacity, which includes at least three loading and three unloading operations and is documented in an approved training record book taking into account guidance in section B-V/1; and

.3 have completed approved advanced training for liquefied gas tanker cargo operations and meet the standard of competence specified in section A-V/1-2, paragraph 2 of the STCW Code.

5 Administrations shall ensure that a certificate of proficiency is issued to seafarers who are qualified in accordance with paragraph 2 or 4 as appropriate, or that an existing certificate of competency or certificate of proficiency is duly endorsed.

Section A-V/1-2

Mandatory minimum requirements for the training and qualifications of masters, officers and ratings on liquefied gas tankers

Standard of competence

1. Every candidate for certification in basic training for liquefied gas tanker cargo operations shall be required to:

.1 demonstrate the competence to undertake the tasks, duties and responsibilities listed in column 1 of table A-V/1-2-1; and
.2 provide evidence of having achieved:

.2.1 the minimum knowledge, understanding and proficiency listed in column 2 of table A-V/1-2-1, and
.2.2 the required standard of competence in accordance with the methods for demonstrating competence and the criteria for evaluating competence tabulated in columns 3 and 4 of table A-V/1-2-1.

2. Every candidate for certification in advanced training for liquefied gas tanker cargo operations shall be required to:

.1 demonstrate the competence to undertake the tasks, duties and responsibilities listed in column 1 of table A-V/1-2-2; and

.2 provide evidence of having achieved:

.2.1 the minimum knowledge, understanding and proficiency listed in column 2 of table A-V/1-2-2, and
.2.2 the required standard of competence in accordance with the methods for demonstrating competence and the criteria for evaluating competence tabulated in columns 3 and 4 of table A-V/1-2-2.

Annex 2

COURSE OUTLINE

Knowledge, understanding and proficiency			Total hours for lectures	Total hours for exercises
Competence 1 : Contribute to the safe operation of a liquefied gas tanker				
1.0	**Basic knowledge of liquefied gas tankers**			
	1.1	Types of liquefied gas tankers	1.5	
	1.2	General arrangement and construction (*)	1.5	
2.0	**Basic knowledge of cargo operations**			
	2.1	Piping systems and valves (*)	1.5	
	2.2	Cargo handling equipment (*)	1.5	
	2.3	Loading, unloading and care in transit (*)	3.0	
	2.4	Emergency shutdown(ESD) system (*)	0.5	
	2.5	Tank cleaning, purging, gas freeing and inerting (*)	1.0	
3.0	**Basic knowledge of the physical properties of liquefied gases**			
	3.1	Properties and characteristics (**)	0.25	
	3.2	Pressure and temperature; including vapour pressure / temperature relationship	0.50	
	3.3	Types of electrostatic charge generation	0.50	
	3.4	Chemical symbols	0.25	
4.0	**Knowledge and understanding of tanker safety culture and safety management**		1.5	
Competence 2 : Take precautions to prevent hazards				
5.0	**Basic knowledge of the hazards associated with tanker operations**			
	5.1	Health hazards	0.30	
	5.2	Environmental hazards	0.10	
	5.3	Reactivity hazards	0.10	
	5.4	Corrosion hazards	0.10	
	5.5	Explosion and flammability hazards	0.30	
	5.6	Sources of ignition	0.10	
	5.7	Electrostatic hazards	0.10	
	5.8	Toxicity hazards	0.10	
	5.9	Vapour leaks and clouds	0.10	
	5.10	Extremely low temperatures	0.10	
	5.11	Pressure hazards	0.10	

Knowledge, understanding and proficiency			Total hours for lectures	Total hours for exercises
6.0	**Basic knowledge of hazard controls**			
	6.1	Inerting, drying and monitoring techniques	0.25	
	6.2	Anti-static measures	0.25	
	6.3	Ventilation	0.125	
	6.4	Segregation	0.125	
	6.5	Cargo inhibition	0.125	
	6.6	Importance of cargo compatibility	0.125	
	6.7	Atmospheric control	0.25	
	6.8	Gas testing	0.25	
7.0	**Understanding of information on a Safety Data Sheet (SDS)**		1.5	
Competence3: Apply occupational health and safety precautions and measures				
8.0	**Function and proper use of gas-measuring instruments and similar equipment**		0.5	
9.0	**Proper use of safety equipment and protective devices**			
	9.1	Breathing apparatus and tank-evacuating equipment(**)		0.25
	9.2	Protective clothing and equipment(**)		0.25
	9.3	Resuscitators(**)		0.25
	9.4	Rescue and escape equipment(**)		0.25
10.0	**Basic knowledge of safe working practices and procedures in accordance with legislation and industry guidelines and personal shipboard safety relevant to liquefied gas tankers**			
	10.1	Precautions to be taken when entering enclosed spaces(**)	0.5	
	10.2	Precautions to be taken before and during repair and maintenance work	0.25	
	10.3	Safety measures for hot and cold work	0.5	
	10.4	electrical safety	0.25	
	10.5	Ship/shore safety checklist(**)	1.5	
11.0	**Basic knowledge of first aid with reference to a Material Safety Data Sheet (MSDS)**		1.5	
Competence4 : Carry out fire – fighting operations				

Knowledge, understanding and proficiency			Total hours for lectures	Total hours for exercises
12.0	**Fire safety and fire fighting operations**			
	12.1	Tanker fire organization and action to be taken(**)	0.25	
	12.2	Special hazards associated with cargo handling and transportation of liquefied gases in bulk	0.25	
	12.3	Fire-fighting agents used to extinguish gas fires(**)	0.25	
	12.4	Fixed fire-fighting foam system operations	0.25	
	12.5	Portable fire-fighting foam operations(#)/(**)	0.25	1.0
	12.6	Fixed dry chemical system operations(#)/(**)	0.25	2.0
	12.7	Basic knowledge of spill containment in relation to other fire-fighting operations	0.50	
Competence 5 : Respond to emergencies				
13.0	**Basic knowledge of emergency procedures including emergency shutdown**		0.50	
Competence6 :Take precautions to prevent pollution of the environment from the release of liquefied gases				
14.0	**Basic knowledge of the effects of pollution on human and marine life**		0.25	
15.0	**Basic knowledge of shipboard procedures to prevent pollution**		0.25	
16.0	**Basic knowledge of measures to be taken in the event of spillage.**			
	16.1	Report relevant information to the responsible persons	0.20	
	16.2	Assist in implementing shipboard spill-containment procedures	0.20	
	16.3	Prevent brittle fracture	0.10	
17.0	**Case Study**		1.0	
17.1	**Assessment**		1.5	
	Subtotals		29.0	1.0
	Total for the course		**30.0**	

Notes:-
It is suggested that relevant topics which are marked with an Asterisk (*) may be taught on a simulator, if available..

The relevant topics which are marked with a double Asterisk (**) shall be demonstrated practically and may be supplemented with videos and CBT's.

Practical fire-fighting topics (12.5, 12.6) covering 3 hrs, which are marked with a Hash (#) to be conducted separately in any facility which can conduct practical exercises and instruction under approved and truly realistic training conditions (e.g., fire-fighting mock up).The practical fire-fighting demonstrations is not part of this course and must be covered as an additional Tanker Fire Fighting module in the Fire Prevention and Fire-fighting course. However, the theory section to be covered within the time table frame of this course.

ANNEX 3

COURSE TIME-TABLE

	1st Period (1.5 Hours) (0900 - 1030 hrs)	2nd Period (1.5 Hours) (1100 - 1230 hrs)		3rd Period (1.5 Hours) (1330 - 1500 hrs)	4th Period (1.5 Hours) (1530 - 1700 hrs)
Day 1	1.0 Basic knowledge of liquefied gas tankers 1.1 Types of liquefied gas tankers	1.2 General arrangement and construction (*)		2.0 Basic knowledge of cargo operations: 2.1 Piping systems and valves (*)	2.2 Cargo handling equipment(*)
Day 2	3.0 Basic knowledge of the physical properties of liquefied gases 3.1 Properties and characteristics(**) 3.2 Pressure and temperature, including vapour pressure / temperature relationship 3.3 Types of electrostatic charge generation 3.4 Chemical symbols	5.0 Basic knowledge of the hazards associated with tanker operations 5.1 Health hazards 5.2 Environmental hazards 5.3 Reactivity hazards 5.4 Corrosion hazards 5.5 Explosion and flammability hazards 5.6 Sources of ignition 5.7 Electrostatic hazards 5.8 Toxicity hazards 5.9 Vapour leaks and clouds 5.10 Extremely low temperatures 5.11 Pressure hazards	**MEAL BREAK (1200 – 1300 hrs)**	6.0 Basic knowledge of hazard controls 6.1 Inerting, drying and monitoring techniques 6.2 Anti-Static measures 6.3 Ventilation 6.4 Segregation 6.5 Cargo inhibition 6.6 Importance of cargo compatibility 6.7 Cargo tank atmosphere monitoring 6.8 Gas Testing	7.0 Understanding of information on a Safety Data Sheet (SDS)
Day 3	11.0 Basic knowledge of first aid with reference to a Safety Data Sheet (SDS)	10.0 Basic knowledge of safe working practices and procedures in		10.5 Ship/shore safety checklist (**)	8.0 Function and proper use of gas-measuring instruments and similar equipment 9.0 Proper use of safety equipment and protective

	1st Period (1.5 Hours) (0900 - 1030 hrs)	2nd Period (1.5 Hours) (1100 - 1230 hrs)		3rd Period (1.5 Hours) (1330 - 1500 hrs)	4th Period (1.5 Hours) (1530 - 1700 hrs)
		accordance with legislation and industry guidelines and personal shipboard safety relevant to liquefied gas tankers 10.1 Precautions to be taken when entering enclosed spaces (**) 10.2 Precautions to be taken before and during repair and maintenance work 10.3 Safety measures for hot and cold work 10.4 Electrical safety	MEAL BREAK (1200 – 1300 hrs)		devices 9.1 Breathing apparatus and tank evacuating equipment (**) 9.2 Protective clothing and equipment (**) 9.3Resuscitators (**) 9.4 Rescue and escape equipment (**)
Day 4	2.4 Emergency shut Down system (ESD) (*) 2.3 Loading, unloading and care in transit (*)	2.3 Loading, unloading and care in transit (contd) (*)		2.3 Loading, unloading and care in transit(*) 2.5 Tank cleaning, purging, gas-freeing and inerting(*)	4.0 Knowledge and understanding of tanker safety culture and safety management

	1st Period (1.5 Hours) (0900 - 1030 hrs)	2nd Period (1.5 Hours) (1100 - 1230 hrs)		3rd Period (1.5 Hours) (1330 - 1500 hrs)	4th Period (1.5 Hours) (1530 - 1700 hrs)
Day 5	12.0 Fire safety and fire fighting operations 12.1 Tanker fire organization and action to be taken(**) 12.2 Special hazards associated with cargo handling and transportation of liquefied gases in bulk 12.3 Fire-fighting agents used to extinguish gas fires(**) 12.4 Fixed fire-fighting foam system operations(**) 12.5 Portable fire-fighting foam operations(#)/(**) 12.6 Fixed dry chemical system operations(#)/(**)	12.7 Basic knowledge of spill containment in relation to fire-fighting operations 13.0 Basic knowledge of Emergency procedures, including emergency shutdown 14.0 Basic knowledge of the effects of pollution on human and marine life 15.0 Basic knowledge of Shipboard procedures to prevent pollution	MEAL BREAK (1200 – 1300 hrs)	16.0 Basic knowledge of measures to be taken in the event of spillage 16.1 report relevant information to the responsible persons 16.2 assist in implementing shipboard spill-containment procedures 16.3 prevent brittle fracture 17.0 Case studies	Test and Discussions

Tea Breaks: 1030-1100 / 1500-1530

Institute's LOGO

NAME and ADDRESS of the D. G. Approved Training Institution

INDOS No: Tel: Fax: E-mail:

Certificate No: _____

THIS IS TO CERTIFY THAT *[full name of candidate]*

Date of Birth ..... (dd/mm/yyyy)

Holder of C.D.C. No. ..... Passport No. .....

Certificate of Competency / Proficiency, (if any) Grade : ..... No. .....

Indian National Database of Seafarers (INDoS No.) .....

has successfully completed a training course in

BASIC TRAINING FOR LIQUEFIED GAS TANKER CARGO OPERATIONS

held from .....to ..... .

The course is approved by the Directorate General of Shipping and meets the training requirements laid down in Regulation V/1-2 paragraph 2, Section A-V/1-2 paragraph 1 and Table A-V/1-2-1 of the STCW Convention and Code as amended in 2010, related to Liquefied Gas Tanker Cargo Operations.

The candidate has also met the additional criteria specified in the STCW Convention, applicable to the issue of the certificate.

This certificate is issued under the authority of the Directorate General of Shipping Ministry of Shipping, Government of India.

_____
Signature of Candidate

_____
Name and Signature of Course In-charge

Date of Issue : _____

Date of Expiry : UNLIMITED

Colour Photograph (35 mm x 35 mm)

Official Seal

_____
Name and Signature of Dean / Principal

Note: This is not a certificate of Proficiency in Basic Training in Liquefied Gas Tanker Cargo Operations, This Certificate alongwith DGS approved "Practical Tanker Fire-fighting Course" certificate and other requisite documents must be submitted to the Administration or its authorised centre(s) to obtain the Certificate of Proficiency.

MANDATORY GUIDELINES FOR TRAINING INSTITUTES FOR OBTAINING APPROVAL FROM DIRECTORATE GENERAL OF SHIPPING

TO CONDUCT

BASIC TRAINING IN OIL AND CHEMICAL TANKER CARGO OPERATIONS (Course ID 76)

To avoid unnecessary repetition, reference has been made herein to DGS Order no: 1 of 2003 (Guidelines for the conduct of Pre-Sea Training courses for Merchant Navy) Wherever appropriate.

TABLE OF CONTENTS

BASIC DETAILS OF THE COURSE

1.1. AIMS:

This course provides training to candidates to be duly qualified under Section A – V/1-1 of the STCW code with specific duties and responsibilities related to cargo or cargo equipment on oil and chemical tankers. It comprises of a basic training programme appropriate to their duties, including basic training for oil and chemical tanker safety, fire safety measures, pollution prevention, safe operational practices and obligations under applicable law and regulations. The course covers the competence requirements as given in the table A-V/1-1-1 of the STCW Code adopted by the International Convention on Standards of Training, Certification and Watchkeeping for Seafarers, 1978 as amended in 2010.

1.2. Objective

Provided they hold an appropriate certificate and are otherwise qualified in accordance with regulation Section A-VI/1 of the International Convention on Standards of Training, Certification and Watchkeeping for Seafarers 1978, as amended, those successfully completing the course will be eligible to carry out assigned specific duties and responsibilities related to cargo or cargo equipment on Oil and Chemical Tankers. The trainee shall:

- Be familiar with the equipment, instrumentation and controls used for cargo handling on an oil and chemical tanker
- Have acquired greater awareness of the need of proper planning and the use of checklists involved in various cargo handling operations
- Have an enhanced awareness to apply proper and safe procedures at all times when carrying out the various operations on board oil and chemical tankers
- Be able to identify operational problems and assist in solving them.
- Follow safety practices and protect the marine environment
- Be able to assist and co-ordinate actions during emergencies

These guidelines shall be applicable from 01.08.2015.

2. QUALIFICATION & ELIGIBILITY OF STUDENTS

2.1. Entry standards

This course is principally intended for candidates for certification for basic training for oil and chemical tanker cargo operations as specified in section A-V/1-1 para 1 of the STCW Code as amended. The trainees shall have successfully completed approved Basic Safety Training course as per STCW Section A – VI/1, para 2, 3, Tables A – VI/1-1, A – VI/1-2, A- VI/1-3, A – VI/1-4.

2.2. Required attendance:

100% attendance is required for successful completion of the course.
However, in exceptional circumstances, a student is allowed absence of up to one day subject to his attending the lectures missed out during the next course at the same institute. The institute shall keep proper records of such cases.

2.3. Course intake limitations

The number of trainees should not exceed 24 and practical training should be undertaken in small groups of not more than eight.

3. INFRASTRUCTURE REQUIREMENT

3.1. Teaching facilities and equipment

Ordinary classroom facilities and an overhead projector are sufficient for most of the Course. However, dedicated CBT modules to be run on an ordinary PC as well as exercises on an operational, hands-on liquid cargo handling simulator, will greatly enhance the quality and result of the course. In such cases sufficient PCs for use by one or two trainees will be required. In addition, a video player will be required when using videos in the teaching program.

A. Classroom

Class room shall be of minimum area 1.5 sq.m x number of trainees and equipped with a white / black board, overhead / LCD projector / Video player/ P.C/Laptop.

B. Cargo Handling Simulator

The Oil/Chemical Tanker Cargo and Ballast Handling simulator may be used for familiarization with cargo equipment and instrumentation of oil/chemical tanker, but its not obligatory.

The teaching aids required are mentioned under paragraph 14.

3.2. Use of Simulators

The revised STCW Convention sets standards regarding the performance and use of simulators for mandatory training, assessment or demonstration of competence. The general performance standards for simulators used in training and for simulators used in assessment of competence are given in Section A-I/12. Section B-1/12 provides guidance on the use of simulators in these activities. Simulator -based training and assessment is not a mandatory requirement for this basic oil and chemical tanker training program. However, it is widely recognized that well-designed lessons and exercises can improve the effectiveness of training and shorten training times compared to traditional methods.
If using simulator-based training, instructors should ensure that the aims and objective of these sessions are defined within the overall training program and that tasks are selected so as to relate as closely as possible to shipboard tasks and practices. Instructors should refer to STCW, Section A-I/12, Part 2.
Those topics in the Course Outline marked with an asterisk (*)may be taught on a simulator.

4. COURSE DETAILS

4.1. Course duration: 6 days (42 hrs.)
4.2. Course outline: As per Annexure 2

5. HOLIDAYS

5.1. Sundays shall be holidays.
5.2. Independence Day (15th August) and Republic Day (26th January) shall be compulsory holidays.
5.3. Students shall normally enjoy the holidays observed by the Govt of the state in which the institute is located.

6. FACULTY REQUIREMENT

6.1. Qualifications and experience of Training Staff

6.1.1 The Faculty shall hold a Certificate of competency as Master (FG)OR MEO Class I, issued or recognized by the Government of India.

AND HAVE

atleast 3years service on Merchant ships of which at least one year should have been in the rank of Chief Officer or 2nd Engineer and shall have at least three months sea experience on Oil and / or Chemical tanker.

It shall be ensured that at least one faculty member has sea experience, as per above, on Oil Tankers, and at least one on Chemical Tankers.

6.2. The Course-faculty shall have undergone an approved Advanced Training Program in Oil or Chemical Tanker Cargo Operation, as the case may be.

6.3. Training of Trainers & Assessors Course:
As per DGS Order no: 1 of 2003.

6.4. Visiting faculty members:
Qualifications and experience of visiting faculty members should be the same as that of regular faculty as specified above.

6.5. Age limit for regular faculty members:
As per DGS Order no: 5 of 2013.

7. FACULTY STRENGTH

7.1. Not less than two faculty (inclusive of the course-in-charge).
7.2. Minimum of 50% of the entire portion must be covered by permanent faculty.

8. COURSE DURATION

A total of 42 hours of lectures, including practical training and assessment.
Practical Tanker firefighting in a mock up using Foam and DCP installation (5 hours), are additional to this training, and to be conducted at a fire fighting complex.

9. ASSESSMENT

To be deemed pass in the course, the student shall meet the following requirement.

1. Minimum classroom / simulator attendance required is 90%. However relaxation in the same may be granted only as per DGS guidelines from time to time.
2. Assessment shall be conducted by way of a written test.
   Objective Type theory paper: Duration 0.5 hr – Pass Percentage 50%.
3. Practical exercises on Liquid Cargo Handling Simulator (Oil / Chemical) may also be one of the assessment methods.

10. QUALITY STANDARDS

As per DGS Order no: 1 of 2003.

11. INSPECTIONS

As per DGS Order no: 1 of 2003.

12. COST OF INSPECTIONS

As per DGS Order no: 1 of 2003.

13. FEES TO GOVT

As per DGS Order no: 1 of 2003.

14. TEACHING AIDS

A. Teaching Aids

A1 Instructor's Notes
A2 Case studies and exercises
A3 White board
A4 Overhead projector for power point presentations
A5 Video Player
A6 Oxygen Resuscitator
A7 Self-Contained Breathing apparatus
A8 Portable oxygen meter
A9 Portable combustible-gas / multi-gas detector
A10 Portable tank-scope / Multi point flammable gas (infra- red gas analyzer)
A11 Portable toxic-gas detector
A12 Chemical Absorption tubes for toxic-gas detector – 10 for different chemicals
A13 Personal multi-gas detector
A14 Tank evacuation equipment (harness, pulley, tackles)
A15 Chemical Suit
A16 Oil Tanker Cargo & Ballast Water Handling Simulator (optional)
A17 Chemical Tanker Cargo & Ballast Water Handling Simulator (optional)

B. IMO References

1. SOLAS 1974, International Convention for the Safety of Life at Sea, 1974 (SOLAS 1974) Consolidated Edition 2009, (IMO-IIOE)
2. STCWas amended, including 2010 Manila amendments, International Convention on Standards of Training, Certification and Watchkeeping for Seafarers

3. MARPOL 73/78, International Convention for the Prevention of Pollution from Ships, Consolidated Edition 2011
4. Inert Gas Systems (IMO-860E)
5. Crude Oil Washing Systems (IMO-617E)
6. MFAG with Chemical supplement for use in Accidents Involving Dangerous Goods (IMO 251 E)
7. BCH Code, Code for the Construction and Equipment of Ships Carrying Dangerous Chemicals in Bulk as amended (IMO-IC 772E)
8. IBC Code, International Code for the Construction and Equipment of Ships Carrying Dangerous Chemicals in Bulk (IBC Code), as amended (IMO-IC IOOE)
9. SOPEP Guidelines, Guidelines for the Development of Shipboard Oil Pollution Emergency Plans (SOPEP) (IMO-586E)
10. ISM Code, International Safety Management Code (ISM Code) (IMO-117E)
11. IMO Model Course 1.01Basic Training for Oil and Chemical Tanker Cargo Operations.

C. Reference Books

1. International Safety Guide for Oil Tankers and Terminals. 5th ed. [London, Witherby and Co. Ltd. (32/36 Aylesbury Street, London, EC1 R OET, U.K),1996] (ISBN 1-85609-081-7)
2. Tanker Safety Guide (Chemicals), International Chamber of Shipping, Tanker Safety Guide (Chemicals), 3rd ed. (London, Witherby and Co. Ltd., 2002) (ISBN 0-948691-50-6)
3. Safety in Oil Tankers, International Chamber of Shipping, Safety in Oil Tankers. (International Chamber of Shipping, Carthusian Court, 12 Carthusian Street, London, ECIM 6EZ, U.K.)
4. Safety in Chemical Tankers, International Chamber of Shipping, Safety in Chemical Tankers (International Chamber of Shipping, Carthusian Court, 12 Carthusian Street, London, EC1M 6EZ, U.K.)

D. Other Recommended Textbooks (non-mandatory)

1. Safe Oil Tanker operations, 2011 edition- Capt. KSD Mistree& Mr. B. K. Sharma. - MARINEX Publications. A-3, Silver Queen, Soonawala Agyari marg,Mumbai, India. e-mail: marinez1@hotmail.com Tel: 91 22 24465470
2. Basic Safe Tanker Handbook for Oil, Chemicals, LPG and LNG, Basic Safe Tanker Handbook for Oil, Chemicals, LPG and LNG, 2011, Capt. KSD Mistree, MAREX Publication, C - 209, Morya House, New Link Road, Andheri (w), Mumbai - 400 053. India.Tel.: 91 22 6734 9292 Fax: 91 22 6734 9222

3. Ship to Ship Transfer Guide (Petroleum), International Chamber of Shipping/Oil Companies International Marine Forum, Ship to Ship Transfer Guide (Petroleum), 4th ed. (London, Witherby & Co. Ltd., 2005) (ISBN 1-85609-097-3)
4. CHRIS manual II, U.S. Coast Guard, CHRIS, Manual II, Hazardous Chemical Data, (Washington, D.C., Government Printing Office, 1988)
5. Condensed Chemical Dictionary, N. I. Sax, and R. J. Lewis, Sr., Hawley's Condensed Chemical Dictionary, 13th ed. (New York, Van Nostrand Reinhold, 1977) (ISBN 0-442-011318)
6. Tank Cleaning Guide, Tank Cleaning Guide, 6th ed. (Rotterdam, B.V. Chemical Laboratory "Dr. A. Verwey", 1998)
7. Drager-Tube Handbook, Drager-Tube Handbook 11th ed. (Drager Sicherheitstechnik GmbH, Revalstrasse 1, D-23560 Lubeck, Germany, 1998) (ISBN 3-926762-06-3)
8. Measures to Prevent Accidental Pollution, INTERTANKO, Measures to Prevent Accidental Pollution, 1990
9. Code of Safe Working Practices, PO Box 29, Norwich, NR3 1GNTelephone orders/General enquiries:0870 600 5522 Fax orders: 0870 600 5533E-mail: customer.services@tso.co.ukTextphone 0870 240 3701
10. Tanker Management Self Assessment, Witherby Publications , 32/36 Aylesbury street London.. www.witherbys.com ISBN 10: 1905331231 ISBN 13: 9781905331239

E. Recommended Videos

For Oil Tankers VO(x)(At least three videos from below list)

VO1 Portable gas detection equipment calibration procedures

Available from: ***KARCO Website:http://www.karco.in***
e-mail ID:karco@karcoservices.com
Contact Person: apt Pravesh Diwan
Telephone: 91-22-67101229

VO2 Tanker safety depends on you

Available from: NATIONAL AUDIO VISUAL CENTER
National Technical Information Service
5301 Shawnee Rd, Alexandria
VA 22312
E-mail: orders@ntis.gov

VO3 Operation and maintenance of inert gas systems
VO4 The ship/shore interface – petroleum tankers
VO5 Tanker practices series
- cargo - part 4 Code No: 504

VO6 Personal safety on tankers (edition 2), Code No: 970
Available from: Videotel Marine International

84 Newman Street, London W1T 3EU, UK
Tel: +44(0) 20 72991800
Fax: +44(0) 207299 1818
E-mail: mail@videotelmail.com
URL: www.videotel.co.uk

VO7 Liquid Cargo Properties (Seagull CBT # 0032)
VO8 Crude Oil Washing (COW) (Seagull CBT # 0054)
VO9 ODME (Seagull CBT # 0055)

For Chemical Tankers VC(x)(At least three videos from below list)

VC1 FRAMO cargo pumping system - instruction

VC2 Operation of FRAMO cargo pumping system
Available from: Head Office- Frank Mohn Services AS,
PO Box 98, Slatthaug, 5851 Bergen, Norway.
Phone: +4755999000.
URL: www.framo.no

VC3 Static electricity on board tankers - DVD

VC4 Nitrogen on board chemical tankers - DVD

VC5 Explosion on board a laden chemical tanker – DVD

Available from: ***KARCO Website:http://www.karco.in***
e-mail ID:karco@karcoservices.com
Contact Person: Capt. Pravesh Diwan
Telephone: 91-22-67101229

VC6 Chemical tank cleaning & inspection (edition 2) Code No: 950

VC7 Vapour emission control Code No: 1118

VC8 Don't gamble with safety on chemical tankers Code No: 595

Annex 1

STCW Convention and Code as revised in 2010, Chapter V/1-1

Regulation V/1-1

Mandatory minimum requirements for the training and qualifications of masters, officers and ratings on oil and chemical tankers

1 Officers and ratings assigned specific duties and responsibilities related to cargo or cargo equipment on oil or chemical tankers shall hold a certificate in basic training for oil and chemical tanker cargo operations.

2 Every candidate for a certificate in basic training for oil and chemical tanker cargo operations shall have completed basic training in accordance with provisions of section A-VI/1 of the STCW Code and shall have completed:

.1 at least three months of approved seagoing service on oil or chemical tankers and meet the standard of competence specified in section A-V/1-1, paragraph 1 of the STCW Code; or

.2 an approved basic training for oil and chemical tanker cargo operations and meet the standard of competence specified in section A-V/1-1, paragraph 1 of the STCW Code.

3. Masters, chief engineer officers, chief mates, second engineer officers and any person with immediate responsibility for loading, discharging, care in transit, handling of cargo, tank cleaning or other cargo-related operations on oil tankers shall hold a certificate in advanced training for oil tanker cargo operations.

4. Every candidate for a certificate in advanced training for oil tanker cargo operations shall:

.1 meet the requirements for certification in basic training for oil and chemical tanker cargo operations; and

.2 while qualified for certification in basic training for oil and chemical tanker cargo operations, have:

.2.1 at least three months of approved seagoing service on oil tankers, or

.2.2 at least one month of approved onboard training on oil tankers in a supernumerary capacity, which includes at least three loading and three unloading operations and is documented in an approved training record book taking into account guidance in section B-V/1; and

.3 Have completed approved advanced training for oil tanker cargo operations and meet the standard of competence specified in section A-V/1-1, paragraph 2 of the STCW Code.

5. Masters, chief engineer officers, chief mates, second engineer officers and any person with immediate responsibility for loading, discharging, care in transit, handling of cargo, tank cleaning or other cargo-related operations on chemical tankers shall hold a certificate in advanced training for chemical tanker cargo operations.

6. Every candidate for a certificate in advanced training for chemical tanker cargo operations shall:

.1 meet the requirements for certification in basic training for oil and chemical tanker cargo operations; and

.2 while qualified for certification in basic training for oil and chemical tanker cargo operations, have:

.2.1 at least three months of approved seagoing service on chemical tankers, or

.2.2 at least one month of approved onboard training on chemical tankers in a supernumerary capacity, which includes at least three loading and three unloading operations and is documented in an approved training record book taking into account guidance in section B-V/1; and

.3 have completed approved advanced training for chemical tanker cargo operations and meet the standard of competence specified in section A-V/1-1, paragraph 3 of the STCW Code.

7. Administrations shall ensure that a certificate of proficiency is issued to seafarers who are qualified in accordance with paragraph 2, 4 or 6 as appropriate, or that an existing certificate of competency or certificate of proficiency is duly endorsed.

Section A-V/1-1

Mandatory minimum requirements for the training and qualifications of masters, officers and ratings on oil and chemical tankers

Standard of competence

1. Every candidate for certification in basic training for oil and chemical tanker cargo operations shall be required to:
   .1 demonstrate the competence to undertake the tasks, duties and responsibilities listed in column 1 of table A-V/1-1-1; and
   .2 provides evidence of having achieved:
      .2.1 the minimum knowledge, understanding and proficiency listed in column 2 of table A-V/1-1-1, and
      .2.2 the required standard of competence in accordance with the methods for demonstrating competence and the criteria for evaluating competence tabulated in columns 3 and 4 of table A-V/1-1-1.
2. Every candidate for certification in advanced training for oil tanker cargo operations shall be required to:
   .1 demonstrate the competence to undertake the tasks, duties and responsibilities listed in column 1 of table A-V/1-1-2; and
   .2 provides evidence of having achieved:
      .2.1 the minimum knowledge, understanding and proficiency listed in column 2of table A-V/1-1-2, and
      .2.2 the required standard of competence in accordance with the methods for demonstrating competence and the criteria for evaluating competence tabulated in columns 3 and 4 of table A-V/1-1-2.
3. Every candidate for certification in advanced training for chemical tanker cargo operations shall be required to:
   .1 demonstrate the competence to undertake the tasks, duties and responsibilities listed in column 1 of table A-V/1-1-3; and
   .2 provides evidence of having achieved:
      .2.1 the minimum knowledge, understanding and proficiency listed in column 2of table A-V/1-1-3, and
      .2.2 the required standard of competence in accordance with the methods for demonstrating competence and the criteria for evaluating competence tabulated in columns 3 and 4 of table A-V/1-1-3.

Annex 2

COURSE OUTLINE

	Knowledge, understanding and proficiency		Total hours for lectures	Total hours for practicals
1	**Basic knowledge of tankers**			
	1.1	Types of oil and chemical tankers	0.25	
	1.2	Basic knowledge of ship arrangements of an Oil tanker (*)	0.25	
	1.3	Basic knowledge of ship arrangements of a Chemical Tanker (*)(##)	0.25	
	1.4	Pumps and Eductors	0.25	
	1.5	Cargo heating System	0.25	
	1.6	Inert Gas System	0.5	
	1.7	Cargo measurement systems	0.25	
2	**Physical and chemical properties of oil and chemicals**			
	2.1	Basic physics	2.0	
	2.2	Basic chemistry, chemical elements and groups	1.5	
	2.3	Physical properties of oil and chemicals carried in bulk	1.5	
3	**Knowledge and understanding of tanker safety culture and safety management**		**2.0**	
4.1	**Hazards**			
	4.1.1	Health hazards	0.5	
	4.1.2	Environmental hazards	0.5	
	4.1.3	Reactivity hazards	0.25	
	4.1.4	Corrosion hazards	0.25	
	4.1.5	Explosion and Flammability hazards	0.5	
	4.1.6	Sources of ignition, Including electrostatic Hazards	0.5	
	4.1.7	Toxicity hazards	0.25	
	4.1.8	Vapour leaks and clouds	0.25	
4.2	**Basic knowledge of hazard controls**			
	4.2.1	Inerting, water padding, drying agents and monitoring techniques	0.50	
	4.2.2	Anti-static measures	0.5	
	4.2.3	Ventilation	0.25	
	4.2.4	Cargo segregation	0.25	
	4.2.5	Cargo inhibition	0.25	
	4.2.6	Importance of cargo Compatibility	0.5	
	4.2.7	Atmospheric control	0.5	
	4.2.8	Gas Testing	0.25	
	4.2.9	Understanding of Information on a Material Safety Data Sheet (MSDS)	0.5	0.5
5	**SAFETY**			
	5.1	Function and proper use of gas-measuring		1.0

	Knowledge, understanding and proficiency	Total hours for lectures	Total hours for practicals
	instruments (**)		
5.2	Proper use of safety equipment and protective devices including:		
5.2.1	breathing apparatus and tank evacuating equipment(**)	0.5	0.5
5.2.2	protective clothing and equipment(**)	0.5	
5.2.3	resuscitators(**)	0.5	
5.2.4	rescue and escape equipment(**)	0.5	
5.3	Basic knowledge of safe working practices and procedures in accordance with legislation and industry guidelines relevant to oil and chemical tankers		
5.3.1	Precautions to be taken when entering enclosed spaces	1.0	
5.3.2	Precautions to be taken before and during "repair and maintenance" work in a gas dangerous area	0.5	
5.3.3	Safety measures for hot and cold work	1.5	
5.3.4	Electrical safety precautions	0.5	
5.4	Basic knowledge of first aid with reference to a Material Safety Data Sheet (MSDS)	2.0	
6	**Fire Safety and Fire fighting operations**		
6.1	Oil and Chemical Tanker fire response organization and action to be taken (**)	1.5	
6.2	Fire hazards associated with cargo handling and transportation of hazardous and noxious liquids in bulk	1.5	
6.3	Fire-fighting agents used to extinguish oil fires (**)	0.25	
6.4	Fire-fighting agents used to extinguish chemical fires and its compatibility with chemical cargoes (**)(##)	0.25	
6.5	Fixed fire-fighting foam operations (#)	0.5	2.0
6.6	Portable fire-fighting foam operations(#)	0.25	1.0
6.7	Fixed dry chemical powder operations (#)	0.5	2.0
6.8	Spill containment in relation to fire-fighting operations	0.25	
7	**Cargo operations**		
7.1	For Oil and Chemical Tankers	0.25	
7.2	**For oil tankers**(*)		
7.2.1	Cargo information	0.5	
7.2.2	Inerting	1.0	
7.2.3	Loading	0.5	
7.2.4	Unloading	0.5	
7.2.5	Tank cleaning	1.0	
7.2.6	Purging and gas freeing	0.5	

	Knowledge, understanding and proficiency	Total hours for lectures	Total hours for practicals
7.3	**For Chemical Tankers(*)(##)**		
7.3.1	Cargo information	0.5	
7.3.2	Loading	1.0	
7.3.3	Unloading	0.5	
7.3.4	Tank cleaning and gas-freeing	1.0	
8	**Emergencies For Oil and Chemical Tankers**		
8.1	Basic knowledge of emergency procedures, including emergency shutdown	0.5	
8.2	Organizational structure	0.25	
8.3	Alarms	0.25	
8.4	Emergency procedures(*)	0.5	
9	**Pollution Prevention for Oil and Chemical Tankers**		
9.1	Basic knowledge of the effects of oil and chemical pollution on human and marine life	0.5	
9.2	Basic knowledge of shipboard procedures to prevent pollution	0.25	
9.3	SOPEP and SMPEP Measures to be taken in the event of spillage, including the need to: .1 report relevant information to the responsible persons .2 assist in implementing shipboard spill-containment procedures	0.5	
10	**Case Studies on oil and NLS ship emergencies**		
10.1	Fire and Explosion during unloading operations on an oil tanker	0.25	
10.2	Collapsing of seamen during squeegeeing operations (##)	0.25	
11	**Discussions &Assessment**	0.75	
	Subtotals	**40**	**2.0**
	Total for the course		**42.0**

Notes:-

It is suggested that relevant topics which are marked with an Asterisk (*) may be taught on a simulator, if available.

The relevant topics which are marked with a double Asterisk (**) shall be demonstrated practically and may be supplemented with videos and CBT's.

Practical fire-fighting topics (6.4, 6.5, 6.6) covering 5 hrs, which are marked with a Hash (#) to be conducted separately in any facility which can conduct practical exercises and instruction under approved and truly realistic training conditions (e.g., fire-fighting mock up).The practical fire-fighting demonstrations is not part of this course and must be covered as an additional Tanker Fire Fighting module in the Fire Prevention and Fire-fighting course. However, the theory section to be covered within the time table frame of this course.

Topics which are specific to Chemical tankers are marked with (##) and should be taught by the faculty having chemical tanker experience.

ANNEX 3

COURSE TIME-TABLE

	1st Period (2.0 Hours) (0900 - 1100hrs)	2nd Period (2.0 Hours) (1115- 1315hrs)		3rd Period (1.5 Hours) (1345- 1515hrs)	4th Period (1.5 Hours) (1530- 1700hrs)
Day 1	1.1 Types of oil and chemical tankers 1.2 Basic knowledge of ship arrangements of an oil tanker(*) 1.3 Basic knowledge of ship arrangements of a Chemical tanker(*) 1.4 Pumps and Eductors(*) 1.5 Cargo heating System(*) 1.6 Inert Gas System(*) 1.7 Cargo measurement systems(*)	2.1 Basic physics (2.0hrs)	Lunch Break (1315– 1345hrs)	2.2 Basic chemistry, chemical elements and groups (1.5 hrs)	2.3 Physical properties of oil and chemicals carried in bulk (1.5 hrs)
Day 2	3 Knowledge and understanding of tanker safety culture and safety management (2hrs)	4.1.1 Health hazards (0.5hrs) 4.1.2 Environmental hazards (0.5 hrs) 4.1.3 Reactivity hazards (0.25 hrs) 4.1.4 Corrosion hazards 0.25 hrs) 4.1.5 Explosion and flammability hazards (0.5hrs.) (0.5 hrs)		4.1.6 Sources of ignition, including electrostatic hazards (0.5 hrs) 4.1.7 Toxicity hazards (0.25 hrs) 4.1.8 Vapour leaks and clouds (0.25 hrs) 4.2.1 Inerting, water padding drying agents and monitoring techniques (0.5 hrs)	4.2.2 Anti- static measures (0.5 hrs) 4.2.3 Ventilation system on oil and chemical tankers (0.25 hrs) 4.2.4 Cargo Segregation (0.25 hrs) 4.2.6 Importance of cargo compatibility (0.5 hrs)(**)
Day 3	4.2.5 Cargo Inhibition (0.25 hrs) 4.2.7 Atmospheric control (0.5 hrs) 4.2.8 Gas testing (0.25 hrs) 4.2.9 Understanding of Information on a Material Safety Data Sheet (MSDS) (1.0hrs) (#)	5.1 Function and proper use of gas measuring instruments (1 hr)(#)/(**) 5.2.1 Use of breathing apparatus and tank evacuating equipment (0.5+0 .5 hrs)(#)/(**)		5.2.2 Use of protective clothing and equipment (0.5 hrs) (#)/(**) 5.2.3 Proper use of resuscitators (0.5hrs) (#)/(**) 5.2.4 Use of rescue and escape equipment (0.5 hrs) (#)/(**)	5.3 Safe working practices relevant to oil and chemical tankers 5.3.1 Enclosed space entry (1.0 hrs) 5.3.2 Precautions to be taken before and during repair and maintenance work in a gas dangerous area (0.5 hrs)

	1st Period (2.0 Hours) (0900 - 1100hrs)	2nd Period (2.0 Hours) (1115- 1315hrs)		3rd Period (1.5 Hours) (1345- 1515hrs)	4th Period (1.5 Hours) (1530- 1700hrs)
Day 4	5.3.3 Safety measures for hot and cold work (1.5hrs) 5.3.4 Electrical safety precautions (0.5hrs)	5.4 Basic Knowledge of first aid with reference to a Material Safety Data Sheet (2.0hrs)(#)	Lunch Break (1315– 1345hrs)	6.1 Oil and chemical tanker fire response organization (1.5 hrs)(**)	6.2 Fire hazards associated with cargo handling and transportation of hazardous and noxious liquids in bulk (1.5 hrs)
Day 5	6.3 Fire fighting agents used to extinguish oil fires (0.25 hrs)(**) 6.4 Fire-fighting agents used to extinguish chemical fires and its compatibility with chemical cargoes (**)(##) 6.5 Fixed fire-fighting foam operations (0.5hrs) 6.6 Portable fire-fighting foam operations (0.25hrs) 6.7 Fixed dry chemical system operations (0.5hrs) 6.8 Spill containment in relation to fire-fighting operations (0.25)	7.1 **Cargo operations for oil and chemical tankers** 7.2 **For oil tankers(*)** 7.2.1 Cargo Information (0.5 hrs) 7.2.2 Inerting(1.0 hrs.) 7.2.6 Purging and Gas Freeing(0.5hrs.)		7.2.3 Loading((1. 0 hrs.) (*) 7.2.3.2 Ship shore safety check List (0.5hrs.)	7.2.4 Unloading (1.5hrs.) (*)
Day 6	7.3 **For Chemical Tankers (*)(##)** 7.3.1 Cargo information (0.5 hrs) 7.3.2 Loading (1.0hrs) 7.3.3 Unloading (Chemical tankers)(0.5hrs)	7.2 For Oil Tankers (*) 7.2.5 Tank cleaning (1.0hrs.) **for Chemical Tankers (##)** 7.3.4 Tank cleaning and Gas freeing (1.0hrs.)		8.1 Basic knowledge of emergency procedures, including emergency shutdown (0.5 hrs) 8.2 Organizational structure (0.25 hrs) 8.3 Alarms (0.25 hrs) 8.4 Emergency procedures (0.5 hrs) (*)	9.1 Basic knowledge of the effects of oil and chemical pollution on human and marine life (0.5 hrs) 9.2 Basic knowledge of shipboard procedures to prevent pollution (0.25 hrs) 9.3 SOPEP and SMPEP (0.25 hrs) 10.1 Fire and Explosion during unloading operations on an oil tanker(0.25hrs) 10.2 Collapsing of seamen during squeegeeing operations(0.25 hrs)(##) 11 **Discussions and Assessment**

ANNEX 4

Institute's LOGO

NAME and ADDRESS of the D. G. Approved Training Institution

INDOS No: Tel: Fax: E-mail:

Certificate No: _____

THIS IS TO CERTIFY THAT *[full name of candidate]*

Date of Birth ..... (dd/mm/yyyy)

Holder of C.D.C. No. ..... Passport No. .....

Certificate of Competency / Proficiency, (if any) Grade : ..... No. .....

Indian National Database of Seafarers (INDoS No.) .....

has successfully completed a training course in

BASIC TRAINING FOR OIL AND CHEMICAL TANKER CARGO OPERATIONS

held from .....to .....

The course is approved by the Directorate General of Shipping and meets the training requirements laid down in Regulation V/1-1 paragraph 2, Section A-V/1-1 paragraph 1 and Table A-V/1-1-1 of the STCW Convention and Code as amended in 2010, related to Oil and Chemical Tanker Cargo Operations.

The candidate has also met the additional criteria specified in the STCW Convention, applicable to the issue of the certificate.

This certificate is issued under the authority of the Directorate General of Shipping Ministry of Shipping, Government of India.

_____
Signature of Candidate

_____
Name and Signature of Course In-charge

Date of Issue : _____

Date of Expiry : UNLIMITED

Colour Photograph (35 mm x 35 mm)

Official Seal

_____
Name and Signature of Dean / Principal

Note: This is not a certificate of Proficiency in Basic Training in Oil and Chemical Tanker Cargo Operations, This Certificate alongwith DGS approved "Practical Tanker Fire-fighting Course" certificate and other requisite documents must be submitted to the Administration or its authorised centre(s) to obtain the Certificate of Proficiency