1. Course Title: Advance training for chemical tanker cargo operation

2. Scope With reference to convention Imo Model Course:

This course is designed to equip individual with skills, knowledge and attitudes required to -

- Contribute to safe cargo operation of chemical tankers
- Take precautions to prevent hazards
- Meet with Rules and Regulations
- Contribute to Tank-cleaning Operations
- Contribute to Chemical tanker Design and Cargo Containment
- Contribute to safe operation of deck equipment and machinery
- Apply occupational health and safety precautions & measures.
- Apply precautions and contribute to the prevention of pollution of the marine environment.
- Carry out fire fighting operations
- Respond to emergencies
- Take precautions to prevent pollution of the environment from the release of chemical

in accordance with maritime industry standards.

3. Objective:

After completing the course, the candidates should be able to acquire the knowledge, skills and attitude for the safe cargo operation of chemical tankers, Tank-cleaning Operations, Chemical tanker Design and Cargo Containment, precautions to prevent hazards, prevention of pollution, fire fighting operations, emergencies, precautions to prevent pollution of the environment from the release of chemical.

4. Course Outline Shore base & On board Training:

Sl No	**Knowledge, understanding and proficiency**	**Hours**
1.	**Introduction** (STCW Regulation V/1-1 para 6, Code Table A-V/1-1- 3)	**2.0**
2.	**Chemistry and Physics**	**4.0**
3.	**Hazards and control measures**	**4.0**
4.	**Rules and Regulations**	**5.0**
5.	**Chemical tanker Design and Cargo Containment**	**2.0**
6.	**Cargo-handling Systems**	**10.0**
7.	**Occupational health and Safety and Pollution Prevention**	**8.0**
8.	**Loading, unloading, care and Handling of cargo**	**12.0**
9.	**Tank-cleaning Operations**	**6.0**
10.	**Ship/Shore Interface**	**2.0**
11.	**Response to Emergencies**	**6.0**
12.	Assessment	
	TOTAL	**61**

5. Competence Standard/Course Syllabus Checked with up-to-date STCW/IMO Model Course:

Course Outline	**Approx. Time (Hours)**
Knowledge, understanding and proficiency	**Lectures, demonstrations and practical work**
1. **Introduction** (STCW Regulation V/1-1 para 6, Code Table A-V/1-1-3) 1.1 The course 1.2 Cargoes in chemical tankers 1.3 Production and use of liquid chemicals	**2.0**

2. **Chemistry and Physics** 2.1 Physical properties of cargoes , 2.2 Chemistry of cargoes chemical cargoes categories (corrosive, toxic, flammable, explosive) 2.3 Understanding the information contained in a Material Safety Data Sheet (MSDS)	**4.0**
3. **Hazards and control measures** 3.1 Inert gas composition 3.2 Electrostatic hazards 3.3 flammability and explosion 3.4 Health hazards 3.5 Hazards to the environment 3.6 Low boiling point cargoes 3.7 Reactivity hazards 3.8 Polymerization and solidifying cargoes 3.9 Corrosively 3.10 First aid	**4.0**
4. **Rules and Regulations** 4.1 International and national code and regulations 4.2 International Bulk Chemical Codes (**IBC Code)** 4.3 Annex II of MARPOL 73/78 4.4 Certification and surveys	**5.0**
5. **Chemical tanker Design and Cargo Containment** 5.1 Construction and equipment requirements 5.2 General arrangements and construction 5.3 Cargo containment 5.4 Ship types and survival capability	**2.0**
6. **Cargo-handling Systems** 6.1 Tank construction and arrangements 6.2 Pipeline and drainages systems 6.3 Tank and cargo pipeline pressure and temperature control system and alarms 6.4 Gauging and alarm systems 6.5 Gas detecting system 6.6 Tank materials and coatings 6.7 Cargo tank vent and environmental control systems 6.8 Vapor return/recovery systems 6.9 Pumps and unloading systems 6.10 Ballast system 6.11 Efficient stripping 6.12 Cargo heating and cooling systems 6.13 Tank cleaning/washing and slops-retaining systems 6.14 Fire fighting system 6.15 Inert gas systems 6.16 Instrumentation	**10.0**
7. **Occupational health and Safety and Pollution Prevention** 7.1 Tank atmosphere evaluation, entering enclosed spaces 7.2 Correct use of different types of breathing apparatus 7.3 Fire prevention (hot and cold works) and equipment	**8.0**

7.4 Precautions for electrical safety 7.5 Pollution prevention 7.6 Personal Protective Equipment and safety equipment(PPE) 7.7 Precautions concerning repair and maintenance	
8. Loading, unloading, care and Handling of cargo 8.1 Effect of bulk liquid cargoes on trim and stability and structural integrity 8.2 General cargo handling and ballast/de-ballasting operations 8.3 Cargo loading and unloading plans 8.4 Procedures for loading and preparations for loading 8.5 Cargo measurement and calculation 8.6 Tank atmosphere control (Inhibition and stabilization requirements) 8.7 Cargo compatibility and segregation 8.8 Cargo conditioning during transport 8.9 Unloading plan and procedures 8.10 Unloading, stripping and pre-wash operations with NLS 8.11 Ballasting and deballasting	**12.0**
9. Tank-cleaning Operations 9.1 General tank cleaning operations 9.2 Tank-cleaning procedures and disposal of slops 9.3 Inerting and Gas-freeing of cargo tanks 9.4 Tests for cleanliness	**6.0**
10. Ship/Shore Interface 10.1 Liaison with terminals 10.2 Shore reception facilities 10.3 Manage and supervise personnel with cargo related responsibilities	**2.0**
11. Response to Emergencies 11.1 Ship emergency response plan, Organizational structure 11.2 Cargo operations emergency shutdown 11.3 System failure or services essential to cargo 11.4 Fire fighting on chemical tankers 11.5 Enclose space rescue 11.6 Cargo reactivity 11.7 Jettisoning cargo 11.8 Use of Material Data Sheet (MSDS) 11.9 Alarms 11.10 Emergency procedures- actions to be taken following collision, grounding or spillage 11.11 Medical first aid procedures on board chemical tankers	**6.0**
12. Assessment	
TOTAL	**61.0**

6. Entry Standard, Selection Criteria of Students:

Trainees or students wishing to gain entry into this course should possess the following requirements:

- **Age:** be not less than 16 years of age.
- **Education & Training:** must have valid seafaring documents.

7. Intake limitation, with specific mention Instructor-student ratio:
The number of trainees should not exceed 24 and the practical training should be undertaken in small groups of more than eight.

8. Qualification and experience of instructors:
Minimum qualification of any instructor or assessor must be Class- I Deck/Engine Officers with tanker knowledge.

9. Qualification and experience of assessors:
Minimum qualification of any instructor or assessor must be Class- I Deck/Engine Officers with tanker knowledge.

10. Details Facilities & Equipment, materials and resources available for the training; Visual aids lecture Notes, Library facilities, Rental documents, Workshops Training Equipment: Navigational, Engineering, Communication, Seamanship etc:

- Projectors and slides
- Multimedia and videos
- Advanced audio visual systems
- Tanker simulator
- Dummy tanker ships, tank lid, manifold
- Pump model Room

11. Conduct of Training with number of classroom lectures, practical work use of simulator, video etc:

Period → Day ↓	0900-0945	0945-1030	1030-1115	1115-1145	1145-1230	1230-1315	1315-1400	1400-1500	1500-1545	1545-1630
1st Day	Introduction		Response to Emergencies	Tea Break	Chemistry and Physics			Launch Break	Hazards and control measures	
2nd Day	Chemistry and Physics		Response to Emergencies		Rules and Regulations				Chemical tanker Design and Cargo Containment	
3rd Day	Hazards and control measures				Loading, unloading, care and Handling of cargo				Loading, unloading, care and Handling of cargo	
4th Day	Rules and Regulations				Loading, unloading, care and Handling of cargo				Tank-cleaning Operations	
5th Day	Cargo-handling Systems				Cargo-handling Systems				Ship/Shore Interface	
6th Day	Cargo-handling Systems				Cargo-handling Systems				Tank-cleaning Operations	
7th Day	Occupational health and Safety and Pollution Prevention				Occupational health and Safety and Pollution Prevention				Tank-cleaning Operations	
8th Day	Loading, unloading, care and Handling of cargo				Loading, unloading, care and Handling of cargo				Loading, unloading, care and Handling of cargo	
9th Day	Occupational health and Safety and Pollution Prevention				Occupational health and Safety and Pollution Prevention				Tank-cleaning Operations	
10th Day	Response to Emergencies				Response to Emergencies				Assessment	

12. Total duration of Training; Duration of Practical's:
Training period is of 07 days, (61 Hours)

a. Theory - 55 Hours
b. Practical - 06 Hours

13. Assessment procedure, whether independent of instruction or continuous performance evaluation:
Course end assessment shall be carried out to ensure adequate knowledge, understanding & competence of the candidate.

A variety of source of evidence are used which include evidence of candidate's ability, under realistic condition. Short answers, multiple choice, fill in the blanks and true/false type questions in a written test are used for assessment includes direct observation, oral questioning and role play.

14. Formats of certificate to be issued with correct reference to STCW and reference to approval and authorization by the Department of Shipping and contact point of the issuing institution for verifying authenticity:

Annex- 02

No. NMIBOCT/

গণপ্রজাতন্ত্রী বাংলাদেশ সরকার
GOVERNMENT OF THE PEOPLE'S REPUBLIC OF BANGLADESH
ন্যাশনাল মেরিটাইমইন্সটিটিউট
NATIONAL MARITIME INSTITUTE
PHOTO
দক্ষিণহালিশহর, ডাকঘর- বন্দর, চট্টগ্রাম ৪১০০, বাংলাদেশ।
South Halishahar, P.O. Bandar, Chittagong-4100, Bangladesh.
Tel. 880-31-740569, Fax. No. 880-31-800620, E-mail: nmictbd@btcl.net.bd

এডভান্সট্রেনিং কর কেমিক্যালট্যাংকারকার্গোঅপারেশন্সসার্টিফিকেট
ADVANCE TRAINING FOR CHEMICAL TANKERCARGO OPERATIONS CERTIFICATE

এই মর্মে প্রত্যয়নকরাযাইতেছে যে,
This is to certify that,
জনাব/ Mr. .....পিতা/ Son of Mr. ..... জন্ম তারিখ ও স্থান /
Date & Place of Birth ..... পদবী / Rank ..... সি.ডি.সি. নম্বর/C.D.C.No.
.....ইস্যুরতারিখ ও স্থান/ Date & Place of Issue ..... ন্যাশনাল মেরিটাইমইন্সটিটিউট, চট্টগ্রাম,
বাংলাদেশে অনুষ্ঠিতএডভান্সট্রেনিং কর কেমিক্যালট্যাংকারকার্গোঅপারেশন্সসার্টিফিকেটকোর্সটি কৃতিত্বের সাথে সম্পন্নকরিয়াছেন।
has successfully completed basic safety training course onADVANCE TRAINING FORCHEMICAL TANKER CARGO OPERATIONS CERTIFICATEconducted at the National Maritime Institute, Chittagong, Bangladesh.
হইতে/ from ..... পর্যন্ত/ to .....
এই কোর্সটিআন্তর্জাতিক এসোসিয়েশন ১৯৭৮ কনভেনশন ও ইহারসংশোধিতবিধানেরবিধি- V/1-1para 6ও এসোসিয়েশন কোডের সেকশন A-V/1-1-3অনুযায়ীঅনুষ্ঠিতহয়এবংইহাতেবাংলাদেশ সরকারেরনৌ পরিবহনঅধিদপ্তরেরঅনুমোদনরহিয়াছে।

The course is in conformity with International Convention on Standards of Training, Certification & Watch keeping for Seafarers, 1978 as amended, Regulation V/1-1para 6, section A-V/1-1-3 of the STCW codeand has the approval of the Department of Shipping, Government of the People's Republic of Bangladesh.

ইস্যুরতারিখ / Date of Issue .....

মেয়াদ উত্তীর্ণেরতারিখ/ Date of Expiry .....

....
ধারকের স্বাক্ষর /Signature of the holder অধ্যক্ষ/Principal

15. Maintenance of records in Data-base for facilitation of checking including assessments:
NMI will maintain a data-base of all the students who have completed the course. The following records for each individual will be kept so as to ensure that the certificate is issued to a candidate who has met the requirements as laid down by the governing authority regarding issuance of a certificate on Bridge Resource Management.

- Application form
- Assessment papers after completion of course
- Attendance Sheet
- Attested Xerox copy of the issued certificates & licenses
- A registered data-base in hard copy and soft form

16. Internal Quality Standard System if any. Students Impressions, past results:
The institute maintains quality standard system ISO 9001:2008, Certified by DNV GL

17. Course notice served, course conducted as per course notice, progression report served:
Will be complied as per DOS Instruction.

18. Attendance of Students and Instructors:

Students and Instructor attendance sheet attached.

Annex- 03

NATIONAL MARITIME INSTITUTE

TRAINING RECORD

Instructor:

Venue:

Subject:

Brief description on training material:

Attendance:

Name & rank	Sign	Name & rank	Sign	Name & rank	Sign

Signature
Management Representative

Signature
Principal