1. Course Title: Basic training for liquefied gas 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 GAS tankers
- Knowledge of liquefied gas tanker design, systems, and equipment
- Contribute to Loading, unloading, care and handling of cargo
- Take precautions to prevent hazards & safety relevant to liquefied gas tankers.
- Proficiency to calibrate and use of monitoring and gas-detection systems, instruments and equipment
- 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 gas.

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 gas tankers, precautions to prevent hazards, prevention of pollution, firefighting operations, Knowledge and understanding of relevant provisions of the International Convention for the Prevention of Pollution from Ships (MARPOL), emergencies, precautions to prevent pollution of the environment from the release of gas.

4. Course Outline Shore base & On board Training:

Sl No	**Knowledge, understanding and proficiency**	**Hours**
1	Basic knowledge of liquefied gas tankers	3
2	Basic knowledge of cargo operation	3
3	Basic knowledge of cargo operation (Continue..)	4.5
4	Basic knowledge of the physical properties of liquefied gases	1.5
5	Knowledge and understanding of tanker safety culture	1.5
6	Basic knowledge of the hazards associated with gas tanker operations	1.5
7	Basic knowledge of hazard controls	1.5
8	Understanding of Information on a Material Safety Data Sheet (MSDS)	1.5
9	Function and proper use of Gas Measuring instruments and similar instruments	1.5
10	Basic knowledge of safe working practices and procedure in accordance with legislation and industry guidelines and personal shipboard safety relevant to liquefied gas tankers	3
11	Basic knowledge of first aid with reference to a Material Safety Data Sheet (MSDS)	1.5
12	Fire Safety and fire fighting operations	1.5
13	Basic knowledge of spill containment in relation to fire fighting operations	0.5
14	Basic knowledge of emergency procedure including emergency shutdown	0.5
15	Basic knowledge of the effect of pollution on human and marine life	0.5
16	Basic knowledge of shipboard procedures to prevent pollution	0.5
17	Basic knowledge of measures to be taken in the event of spillage	0.5

18	Case Study	0.5
19	18.0 Assessment and Discussion	1.5
	Total	**30**

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

SL No	Knowledge, understanding and proficiency	HOUR
	Day One (6 hrs)	
1	**Basic knowledge of liquefied gas tankers**	**3**
1.1	types of liquefied gas tankers	1.5 h
1.2	general arrangement and construction	1.5 h
2.0	**Basic knowledge of cargo operation**	**3.00h**
2.1	piping system and valve	1.5 h
2.2	cargo handling equipment	1.5 h
	Day Two (6 hrs)	
2.0	**Basic knowledge of cargo operation**	**4.5h**
2.3	loading, unloading and care in transit	3.0 h
2.4	emergency shutdown system	0.5 h
2.5	tank cleaning, purging, gas freeing and inerting	1.0 h
3	**3.0 Basic knowledge of the physical properties of liquefied gases, including –**	**1.5 h**
3.1	properties and characteristics	1.5 h
3.2	pressure and temperature, including vapour pressure/temperature relationship.	
3.3	types of electrostatic charge generation	
3.4	chemical symbols	
	Day Three (6 hrs)	
4	**Knowledge and understanding of tanker safety culture**	**1.5 h**
5	**Basic knowledge of the hazards associated with gas tanker operations, including**	**1.5 h**
5.1	health hazard	1.5 h
5.2	environmental hazards	
5.3	reactivity hazards	
5.4	explosion and flammability hazards	
5.5	corrosion hazard	
5.6	source of ignition	
5.7	electrostatic hazard	
5.8	toxicity hazard	
5.9	vapour, leaks and clouds	
5.10	extremely low temperature	
5.11	pressure hazards	
6	**Basic knowledge of hazard controls:**	**1.5h**
6.1	inerting, drying and monitoring techniques	1.5 h
6.2	anti-static measure	
6.3	Ventilation	
6.4	Segregation	
6.5	cargo inhibition	
6.6	importance of cargo compatibility	
6.7	atmospheric control	

6.8	gas testing	
7.0	**Understanding of Information on a Material Safety Data Sheet (MSDS)**	**1.5 h**
	Day Four (6 hrs)	
8	**Function and proper use of Gas Measuring instruments and similar instruments**	**1.5 h**
8.1	breathing apparatus and tank evacuation equipment	1.5 h
8.2	protective clothing and equipments	
8.3	Resuscitators	
8.4	Rescue and escape equipments	
9	**Basic knowledge of safe working practices and procedure in accordance with legislation and industry guidelines and personal shipboard safety relevant to liquefied gas tankers, including:**	**3.0 h**
9.1	precautions to be taken when entering enclosed space	1.5h
9.2	precautions to be taken before and during repair work	
9.3	safety measure for hot and cold work	1.5 h
9.4	electrical safety	
9.5	ship/shore safety checklist	
10	**Basic knowledge of first aid with reference to a Material Safety Data Sheet (MSDS)**	**1.5 h**
	Day Five (6 hrs)	
11.0	**Fire Safety and fire fighting operations**	**1.5 h**
11.1	Tanker fire organization and actions to be taken	1.5 h
11.2	special hazard associated with cargo handling and transportation of liquefied gases in bulk	
11.3	fire fighting agents used to extinguish gas fires	
11.4	fixed fire fighting foam system operations	
11.5	portable fire fighting foam operations	
11.6	fixed dry chemical system operation	
12	**Basic knowledge of spill containment in relation to fire fighting operations**	**0.5 h**
13	**Basic knowledge of emergency procedure including emergency shutdown**	**0.5 h**
14	**Basic knowledge of the effect of pollution on human and marine life**	**0.5 h**
15	**Basic knowledge of shipboard procedures to prevent pollution**	**0.5 h**
16	**Basic knowledge of measures to be taken in the event of spillage, including the need to:**	**0.5 h**
16.1	report relevant information to the responsible person	0.5 h
16.2	assist in implementing shipboard spill-containment procedures	
16.3	Prevent brittle fracture	
17	**Case Study**	**0.5 h**
18	**Assessment and Discussion**	**1.5 h**
	Total	**30 h**

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:
Theoretical and practical instruction is given with appropriate arrangement and combination. Laboratory demonstration and guided hands-on followed by assigned group activities shall be employed to facilitate training & assessment.

12. Total duration of Training; Duration of Practical's:
Training period is of 05 days, (30 Hours)

a. Theory - 28 Hours
b. Practical - 02 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:

To be in corporate

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 have 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

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