



www.maritinelnginstitute.com



Advanced LNG Vessel Transfer Ship to Ship (STS) and (FSRU)

LNG Load Master POAC, Operations, Methods and Claims Handling to the Oil & Gas Industry



About this Training Course:

A 'Flagship' Marine LNG Institute Course, this intensive Instructor led online course will equip you with a detailed practical grounding in the fundamentals and advanced STS, FSRU and LNG transfer operations. You will learn the practical tools and techniques that can be utilized to manage risk more effectively and make better practical operational decisions while handling.

Factual case studies and exercises along the way cement participants newly acquired skills and help them apply them to real situations. Equally as important, a look at the mind-set of LNG/Oil operators, FSRU and STS Handlers and surveyors, ship and LNG bunker vessel manufactures, MPA's, naval architects - ship designers, project managers, and marine engineers is given through the discussion; giving student participants an additional boost in anticipating potential problems and correcting them beforehand.

The training methodology will incorporate both theory and skill training components, utilizing both traditional lectures, as well as hands on exercises, group discussions and case studies.

Objectives of this Training Course:

Upon the completion of this course, the participants will be able to:

1. Reinforce knowledge about operations that are carried out in accordance with all relevant national and international maritime legislation, local regulations, and industry best practices.
2. Evaluate the different procedures and factors affecting cost of the operation
3. Ensure overall safety for any STS operation on the use of correct size and number of fenders and certified tested hoses.
4. Become familiar with LNG vessels, operations and LNG STS equipment
5. Enhance understanding of Ship-to-Ship transfer equipment, design, maintenance - and training methods for STS.
6. Familiarize the differences of Person in Overall Advisory Control, Mooring Master and Master of the Ship
7. Establish a useful methodology in reducing risk
8. Understanding environmental challenges
9. Recognize and understand differences in operations and hazards between oil and gas vessels.
10. Understand requirements for LNG vessel compatibility and Optimoor studies and follow an LNG spill response case study
11. Learn the Important Aspects of STS Operations
12. What Regulations and Guidelines are Governing STS Transfer Operations?
13. What is applicable to bunkering of both ocean-going vessels and harbour craft.
14. Technical references cover LNG delivery from LNG bunkering facilities (i.e. trucking, shore, terminal, shipping and ISO tankers lifting facilities) to receiving ships through four modes of transfer (truck-to ship, shore-to-ship, ship-to-ship and LNG cassette bunkering)
15. Master the Parties Involved in the STS Transfers and their Relationship to One Another
16. POAC Performing Different Roles at Particular Point of the STS Operations
17. Pre-planning and Risk Assessment Considerations for LNG
18. Insights on STS Plan and Equipment
19. Review and Plan with Real Life Case Scenario
20. Mooring Operations Manoeuvring and Risks
21. LNG Focussed Cargo Transfer Operations
22. STS Industry and Future LNG Developments
23. Five (5) Case Studies: FLNG, STS, Barge to Ship and Liquefied Natural Gas Ship to Ship Transfer Operations to Floating Structure Re Gasification Unit

Who should attend this Training Course?

This course is intended for the following professions from the maritime and energy industry:

- Ship Owners and Managers • Offshore Vessel and FPSO Owners and Operators • Oil Majors, NOCs and Independents • Ship Superintendents and Safety Officers • Ship Officers and Crews (Master, Chief Officers, Chief Engineers etc) • Bunkering industry Personnel including Loading and Mooring Masters • STS Service Providers • Liquid Cargo and Bunker Surveyors • Ports and Terminal Operators • P&I Inspectors and Executives • LNG FSU Owners, Managers, Operators • Company Assurance Managers and Superintendents • Project Directors • Asset Managers • Project Managers • Project Planners • Cost Estimators • Quality Assurance Managers • Contract Managers • Procurement Manager
 - Maritime Legal Counsels or Advisors • LNG Commercial Managers • LNG Vessel negotiators • LNG Project Managers or Engineers • LNG Commercial Managers • Vessel Operation Managers • LNG Business Risk Managers • LNG Business Development Managers • LNG Contract Managers • LNG Sourcing / Purchasing Managers • Corporate Strategy Managers • Energy Regulators & Investor Relations
- Other useful information at a glance:

Alumni Testimonials:

‘Lecturer is very knowledgeable. A very interactive communication clear and easy to understand.’ **Daewoo Technologies – South Korea**

‘Hybrid technology and regulations and current topics in marine industry such as renewable energy...great. Lecturer really expanded on marine engineering technologies also very good.’ Ship management and Procurement – **Wilhelmsen Vessel Management**

“Great expert, very professional and a key Lecturer. Only 10 students on the course allowed is great for asking questions in small groups of the Lecturer.” **Senior Base Manager – PETRONAS Malaysia**

“I’m going to go to do another of the informative courses. Very interesting and is well and truly a great Lecturer. Very informative.” ~ **Business Manager, Boskalis Ltd**

“I got so much out of it. From an Oil and Gas perspective, I have never been or listen to a world leading expert in this technical Oil and Gas - Maritime field.” ~ **Senior Manager, Ship Brokers Singapore**

“I have done several courses and this one was the best I have attended so far. Very technical and informative, very approachable and professional.” ~ **Woodside Australia**

Course level:

Maximum number of participants: 10. This course can also be offered through Online Instructor Led Training (VILT) format or Corporate ‘In House’ - worldwide

By attending this course, the participants will acquire the fundamentals of international gas and LNG agreements, an understanding of gas and LNG supply and related agreements, and negotiation techniques and strategies relevant to international gas and LNG agreements.

Objectives of this Training Course:

Upon the completion of this course, the participants will be able to:

- Reinforce their knowledge about operations, investments decisions, LNG market frameworks that are carried out in accordance with relevant national and international Law maritime legislation, ISO, local regulations, and industry best practices in the sector
- Evaluate the different procedures and factors affecting cost of the operations
- Become familiar with Gas and LNG value chains, supply, pricing, vessels, operations and equipment
- Enhance their understanding of Gaseous transfer equipment, design cost implications, maintenance costs
- Establish useful methodologies in reducing CAPEX and risk
- Gain specific Focus on USA, Europe, Middle East, Asia Pacific Regions within the LNG Industry
- Develop Energy security in Europe, Middle East, USA and Asia Pacific for commercial and domestic energy supply in the Maritime Industry.
- Assist government agencies with energy security and reduce supply vulnerabilities the Maritime Industry
- Recognise and understand differences in operations and hazards between oil and gas vessels

Further Objectives of this Training Course:

After the completion of this course, the participants will be able to:

- ❖ Reinforce knowledge about operations that are carried out in accordance with all relevant national and international maritime legislation, local regulations, and industry best practices.
- ❖ Evaluate the different procedures and factors affecting cost of the operation.
- ❖ Become familiar with LNG vessels, investments operations and equipment.
- ❖ Enhance understanding of LNG Investments in Ship-to-Ship and bunkering transfer equipment,
- ❖ Design, maintenance – and training methods for STS.
- ❖ Familiarise the differences of Person in Overall Advisory Control, Mooring Master and Master of the Ship and reduce freight costs and CAPEX
- ❖ Establish a useful methodology in reducing investment and financial risks.
- ❖ Understanding environmental challenges.

This course can also be offered through Online Instructor Led Training format or Corporate - ‘In House’.

3-DAYCOURSE AGENDA BELOW

DAY 1:

Introduction

- Introduction to Virtual Learning
- Introduction of Lecturer and student attendees
- Basic outlines of the 3-day course contents and schedule

STS Operations

- Optimisation of vessels
- Harbour draught / berth limitation
- Emergency transfer work
- Class issues of vessel for trading regions
- Commercial reasons, multiple vessels and receivers
- LNG FSU Tandem off-loading and FSRUs

Regulations and Guidelines Governing STS and Transfer Operations

- MARPOL Annex 1, Section 8 about Oil Tanker
- Latest on transfer Guides for Crude, Products and Liquid Gasses
- International Safety Guide for Oil Tankers and Terminals (ISGOTT)
- Oil Companies International Marine Forum (OCIMF) Guidelines
- LNG Vessel operations in port guidance
- LNG Bunkering guidelines (SGMF)

Parties involved in STS and their Relationship to One Another

- How Parties involved (Oil/Gas Majors, Charterers, Service Provider, Cargo Surveyors, POAC, Ships' masters and Mooring Master) work harmoniously to attain operational efficiency and safety
- LNG Ship Management and receiving terminal

Preparation of Cargo Cycle – LNG and Liquid/Gas

Terminal Compatibility Studies

- Applicable to bunkering of both ocean-going vessels and harbour craft.
- The technical references covers LNG delivery from LNG bunkering facilities (i.e., trucking, shore, terminal, shipping and ISO tankers lifting facilities) to receiving ships through four modes of transfer (truck-to-ship, shore-to-ship, ship-to-ship and cassette bunkering)

Roles and responsibility of terminal in LNG cargo transfer

- Terminal loading and discharging
- Ship-to-Shore operations interfaces
- Compatibility forms - Delegate Exercise

Contracted LNG/GAS Cargo Operations and development

- Cargo Transfer checklists and forms required
- Cargo Transfer equipment required

DAY 1 (CONTINUED):

Person in Overall Advisory Control

- Qualifications and Training of POAC
- POAC performing different roles at particular point of the STS Operations
- Liquid/Gas Operations -Tanker Loading and Discharging Operations and Preparations
- Arrival preparations and checklists

Loading Arms – Technology, vendors and designs

- Cryogenic Hoses, testing and type 8 inch and 6 Inch
- Dynamic Positioning
- Manoeuvring with and without tug assistance or DP
- Jetty Approaches: Finger or Face Terminal Design Interface Pre-loading procedures alongside. Ramp up, loading and ramp down, actions and precautions

Pre-planning and Risk Assessment Considerations - STS

- What is LNG? Hazards and Risks vs. Oil
- Screening / Compatibility Studies of participating vessels
- Ship compatibility, and OPTIMOOR
- Criteria in selecting transfer area and Approval from the authorities
- Security issues
- Checklists and Preparations
- Risk Assessments and Management, Helicopter operations, Cargo Hazards, weather conditions, personnel injury, mooring unmooring operations

Oil v/s LNG any differences? LNG and Liquid/Gas Transfer System Architectures and available technologies

- Ship to Ship to shore
- Ship to Platform and LNG Cassette
- Ship to Ship
- Barge to Ship
- FLNG and FSRU
- Ship connected transfer systems and tandem configurations
- System Uptime considerations of effective operations

FSRU and STS Planning and Equipment

- Plan format and information to include
- Joint operations plan
- Who prepares the plan?
- Supply of equipment, fenders, hoses
- Equipment and Locations
- ISM and Training requirements – Timelines for Compatibility

Plan and Review STS Exercise

- Plan review and discuss checklists and equipment items required
- Confirm any training requirements
- Simulation training and bridge team resources management

- Cargo hazards, safety and risks that exist
- Cargo controls
- Cargo training required for personnel (LNG STS Preparations forms)

STS Mooring Operations Manoeuvring and Risks

- Underway and Anchored operations
 - Navigation signals
 - Tug and Tender assistance
 - Carriage and Delivery of Fenders and Equipment
 - Communications
 - Mooring operations, weather limitations for operations.
- Safety and Risk Management**
- Recent industry incidents highlighted
 - Common causes of these incidents
 - ESD 1 and 2 Design Codes and Operations Alarm settings ESD Actions
 - Required crew training and preparations
 - Hazards and Risks moving forward o Geographical hazards o Crew factor
 - Water Curtain Operations and Tests
 - Theory and Potential Damages Ship and shore requirements
 - Preparing for the future incidents, Contingency planning , Salvage of an LNG vessel. Considerations for cargo recovery Environmental impact and technical equipment development

Risk profiling of your operations

- o What response is required?
- Safety Management Systems and Options Receiving terminal and charterer requirements
- o Receiving terminal parameters for acceptance
- o Voyage management considerations to achieve terminal parameters

Typical requirements from charterers

- o Use of Boil Off Gas (BOG), natural or forced
- o Fuel oil use and consumptions allowed o Restrictions on distances and voyage times
- o Case Study - Spill Responses

STS and Cargo Transfer Operations

- Introduction to LNG vessel types
- Personnel transfer • Pre- Cargo Transfer meeting
- Checklist and communications confirmation
- Custody Transfer measurement
- Emergency Shut Down tests, Shore ESD 2 and STS ESD 2 difference
- Cargo operations and monitoring
- Differences for operations between oil and LNG

CASE STUDY –FSRU STS

- Compatibility study and meeting
- OPTIMOOR study
- Simulator training and STS equipment
- Cargo discharge considerations

FSRU STS - Best Practices Oil and LNG comparisons

- Discuss main considerations
 - Best practice any real differences between oil and gas?
- Emergency Response and Contingency Planning - STS**
- Things to do in case of emergency
 - General Emergency Response Management
 - Contingency equipment
 - Oil spill and LNG leak,
 - SOPEP use
 - Fire or Structural damage
 - Poor weather and mooring failures
 - Precautions against piracy
 - Media management and communications, parties involved.

CASE STUDY Spill Response during Cargo STS Transfer Operations • Immediate response and notifications

- Effects and consequences of the spill
- Contingency considerations after spill
- Investigation and Cause

Industry and Future of STS and LNG Developments

- New Technologies and Future Developments

Vessel Design, Technology and Operations - STS

- Fuel systems for LNG powered Vessels
- Measures to reduce energy consumption in ship-to-ship applications
- Cut operating costs while, at the same time, reducing emissions
- Ship design efficiencies
- Technological efficiencies to reduce energy Consumption in all ship application
- Tankers and Bulker
- Containership
- RORO and Cruise-ship design
- Ferries
- OSV

LNG STS Failures Investigation and Root Cause Analysis - Case Study & Delegate Exercise – LNG Failure and Diagnosis,

Analysis and Planning SIMPOS – Simultaneous Operations

- (Transfers and Operations) during STS Operations
- Considerations when performing SIMPOS
 - HAZARD and Risk when performing LNG SIMOPS
 - Ship to Ship operations
 - 24 Hr LNG operations § Where do SIMPOS operations occur?
 - § Why are SIMPOS performed?

Custody Transfer Measurement and Calculations

- System setup parameters
- Sampling and Certification Custody
- LNG Quality controlled transfers – Forensic and laboratory analysis
- Quality Management systems for LNG transfer and analysis
- LNG probes, equipment and software infrastructure to ensure quality control between vendors and buyers
- Ship and Terminal LNG Quality Control

Transfer Guidelines of Terminals Ship and surveyor roles

- Certificate of Loading

Types of Custody Transfer Measurement § Liquid/Gas Quality and Management during transfers § Quality Management Systems for Liquid/Gas § Terminal and ship systems and Equipment

- Inerting
- Aerating
- (CTMs) testing and checks

Detailed analysis of Custody Transfer Procedures, Flow Metering and design for STS by system and type

- Flow measurement and custody transfer flow metering, types
- Coriolis Flow mechanisms, design, metering and performance
- Thermal Flow mechanisms, design, metering and performance
- Differential Flow mechanisms, design, metering and performance
- Ultrasonic Flow mechanisms, design, metering and performance
- Vortex Flow mechanisms, design, metering and performance

Applications of flow meters, calibration, calculations, transfer principles Safety Case Study - Liquid and Gas CARGO SPILLS/ESD AND RELEASES - Protocols and how the systems are used Delegate Exercise

STS and New Bunkering developments for Marine Engineers and Tech Superintendents – Wear down, Fatigue and Failure Management Practices and planning - LNG Fuel, STS and Bunkering

- Overview of SMS & PMS
- Discuss onboard planned maintenance systems – PMS
- Discuss Trend analysis – T.A
- Analysis of Condition monitoring technical - CME
- OEM Main Engine component failures relevant to engine performance

Commercial and Insurance aspects of LNG Carrier General Average and how it affects all participants in the STS Shipping Industry

- What is G.A – why does it affect all participants commercially?
- G.A – LNG Carriers concerns
- G.A – LNG Charterer concerns
- G.A – LNG Facilities and Operators concerns
- G.A – LNG STS, Bunker Handlers & Bunker Operators concerns
- Commercial Contracts and the effects on all parties
- Technical nature of NG G.A
- Rights and Obligations of all participants in the event of LNG G.A STS Safety and Planning

Technical characteristics of LNG

- Handling, storage and spill risk.
- Volatile cargo and gas vapours leak from ruptured tanks, Hoses and pipelines, causing oxygen deficiencies
- Gas Hazard Monitoring Equipment for JSA
- Adverse Weather Working – Guidelines examples for JSA
- LNG STS Hose construction and length
- Hose quality and identification
- The 'Golden' Safety LNG STS Rules Operations
- Confined space entry
- LNG Process and Mechanical isolations
- Electrical isolation • Lifting Operations

Offshore Liquid transfer Inspections

- In Service LNG Inspections
- LNG STS Service Leak Testing
- LNG STS Hose Ops and Vessels Procedures
- COLOUR COUPLINGS INDEXES
- Operational risk profiles in Bunkering
- LNG STS Inspections and Audit – Rigging

Q AND A after each session



MARINE LNG INSTITUTE – COURSE CERTIFICATION & CERTIFICATES ARE ISSUED UPON COMPLETION.

3 day - COURSE CLOSE.



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- Develop Energy security in Asia Pacific for commercial and domestic energy supply in the Maritime Industry.
- Assist government agencies with energy security and reduce supply vulnerabilities in Asia Pacific in the Maritime Industry
- Recognise and understand differences in operations and hazards between oil and gas vessels

Individualized “One to One” for 2 hours post training!

To further optimise your learning experience from our courses, the Marine LNG Institute also offer individualized “One to One” for 2 hours post training **free of charge**.

We help improve your competence in your chosen area of interest, based on your learning needs. This is a great opportunity to improve your capability and confidence in a particular area of expertise. It will be delivered over a secure video conference call by one of our senior trainers.

Who should attend this Training Course?

This course is intended for the following professions from the maritime and energy industry:

- Maritime Legal Counsels or Advisors
- LNG Commercial Managers
- LNG Vessel negotiators
- LNG Project Managers or Engineers
- LNG Commercial Managers
- Vessel Operation Managers
- LNG Business Risk Managers
- LNG Business Development Managers
- LNG Contract Managers
- LNG Sourcing / Purchasing Managers
- Corporate Strategy Managers
- Energy Regulators & Investor Relations
- Ship Owners and Managers
- Offshore Vessel and FPSO Owners and Operators
- Oil Majors, NOCs and Independents
- Ship Superintendents and Safety Officers
- Ship Officers and Crews (Master, Chief Officers, Chief Engineers etc)
- Bunkering industry Personnel including Loading and Mooring Masters
- STS Service Providers
- Liquid Cargo and Bunker Surveyors
- Ports and Terminal Operators
- P&I Inspectors and Executives
- LNG FSU Owners, Managers, Operators
- Company Assurance Managers and Superintendents
- Project Directors

REGISTRATION FORM

LNG TRANSFERS -STS AND FSRU ADVANCED			MAX 20 PAX	<p>Group bookings at the same time from the same company receive the following: 3 or more at 5% off 5 or more at 7% off 8 or more at 10%</p> <p>All other promotions including early bird are exclusive of the group discount.</p>
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DELEGATE DETAILS

Delegate 1

Mr Ms Mrs Dr Others: _____

Name : _____

Job Title : _____

Department : _____

Telephone No. : _____

Email : _____

PAYMENT METHODS

By Direct Transfer. Please quote your Students Name with the remittance advise via email to student enrolments via our website. www.marinelnginstitute.com

All bank charges to be borne by payer. Please ensure that the full invoiced amount per student is received in USD.

Delegate 2

Mr Ms Mrs Dr Others: _____

Name : _____

Job Title : _____

Department : _____

Telephone No. : _____

Email : _____

Company : _____

Address : _____

Country : _____ Postcode: _____

Attention : _____

Invoice to : _____

Telephone No. : _____

Fax No. : _____

We do not accept By Credit Card.

As Payment through credit card incurs a 3.5% admin fee payable by the payer. Payment through credit card is not applicable.

PAYMENT POLICY

Payment is due in full at the time of registration and enrolment. Full payment is mandatory for event attendance. By submitting this registration form, you have agreed to payment terms.

CANCELLATIONS & SUBSTITUTIONS

You may substitute delegates at any time. For cancellations received in writing more than seven (7) days prior to the training course, delegates will receive a 100% credit on the amount paid which can be used in another training course for up to one year from the date of issuance.

The credit is transferable to other persons in the same company and applicable against any future public course. For cancellations received seven (7) days or less prior to an event (including day 7), no credit will be issued.

In addition, a cancellation fee equivalent to 15% of the course fee will be charged. In the event that we postpone or cancels a course, delegate payments at the date of cancellation or postponement will be refunded in full. MLNGI does not provide refunds for cancellations and postponements or waive fees for unpaid invoices upon receipt of registration

3 EASY WAYS TO REGISTER

Please note

- Indicate if you have already registered and made payment by Email + or Web.
- If you have not received an acknowledgement by email before the training course, please contact us to confirm your booking.
- Photocopy this form to register multiple delegates.

3 EASY WAYS TO REGISTER

Marine LNG Institute www.marinelnginstitute.com Contact Enquires: Student Enrolments

Email: info@marinelnginstitute.com

Website Portal: [Enrol – Marine LNG Institute](#)

