GREEN MARINE

METHANOL DUAL FUEL TRAINING

MAERSK TRAINING

United Marine Training Center

METHANOL INSTITUTE

IBIA

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Specialized Training on Methanol as Marine Fuel

Course Rationale

The fast-paced advancement of shipboard technologies as the maritime sector struggles to meet the urgent demand for decarbonization has resulted in shipboard systems that are completely new and different from typical systems of recent years. These new technologies which are intended mainly to address the risks associated with the gases and low-flashpoint fuels and their unique combustion properties leave a wide gap in the knowledge and competence of seafarers who are tasked to operate the ships. Addressing this gap is an urgent and vital measure to assure the continuity of safe and efficient operation of ships.

We at GREEN MARINE, drawing from our vast experience with the design, construction, management and operation of methanol dual-fueled ships, have developed a comprehensive dual fuel training curriculum primarily to fill the training requirement of seafarers serving on board methanol fueled ships. The training will supplement the mandatory Basic and Advanced IGF Code training. It also includes topics that benefit superintendents, technical managers and everyone who has direct interest and control over the management and operations of vessels powered by methanol.

The two-part training serves as a venue for the trainees to directly interact with the facilitators, who are Captains and Chief Engineers with broad operational experiences on board methanol dual fueled vessels as well as in the design approval, and in supervision of methanol DF ship newbuilding construction.

The BASIC part focuses on safety in methanol handling and operation while it also covers contingency measures to deal with emergencies. The ADVANCED part tackles the technical aspect of the methanol system starting from the regulatory background leading to the design. It will put emphasis on the safe and efficient operation of methanol systems and troubleshooting.

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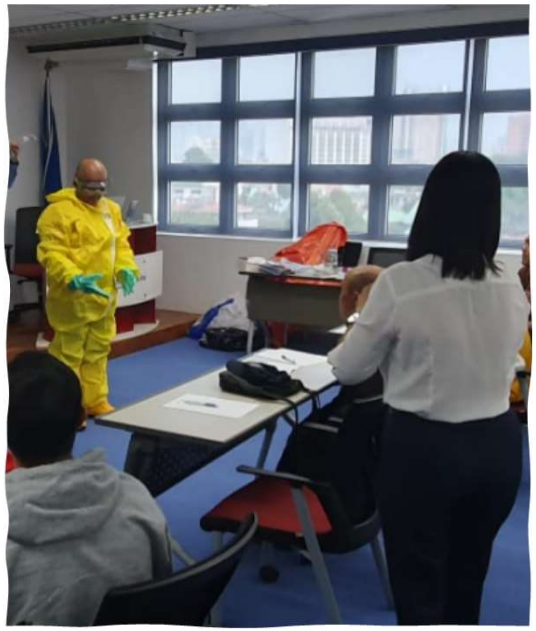
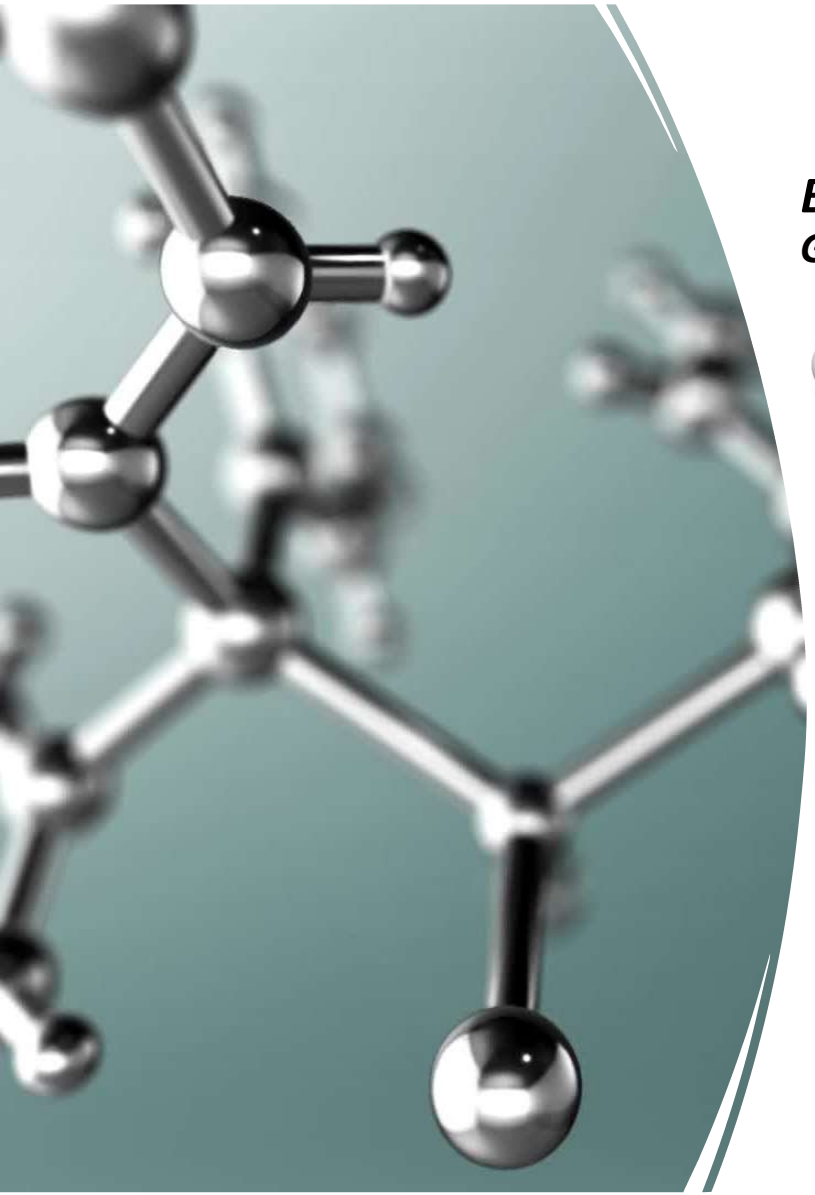
Intended for..

- Sea Staff
- Owners / Superintendents
- New building / Site Team
- Learning and Development Team
- Bunker Surveyors
- Anyone with direct interest



Flexible Facilitation Options

- Classroom
- Online
- Onboard
- On-site (Shipyard)



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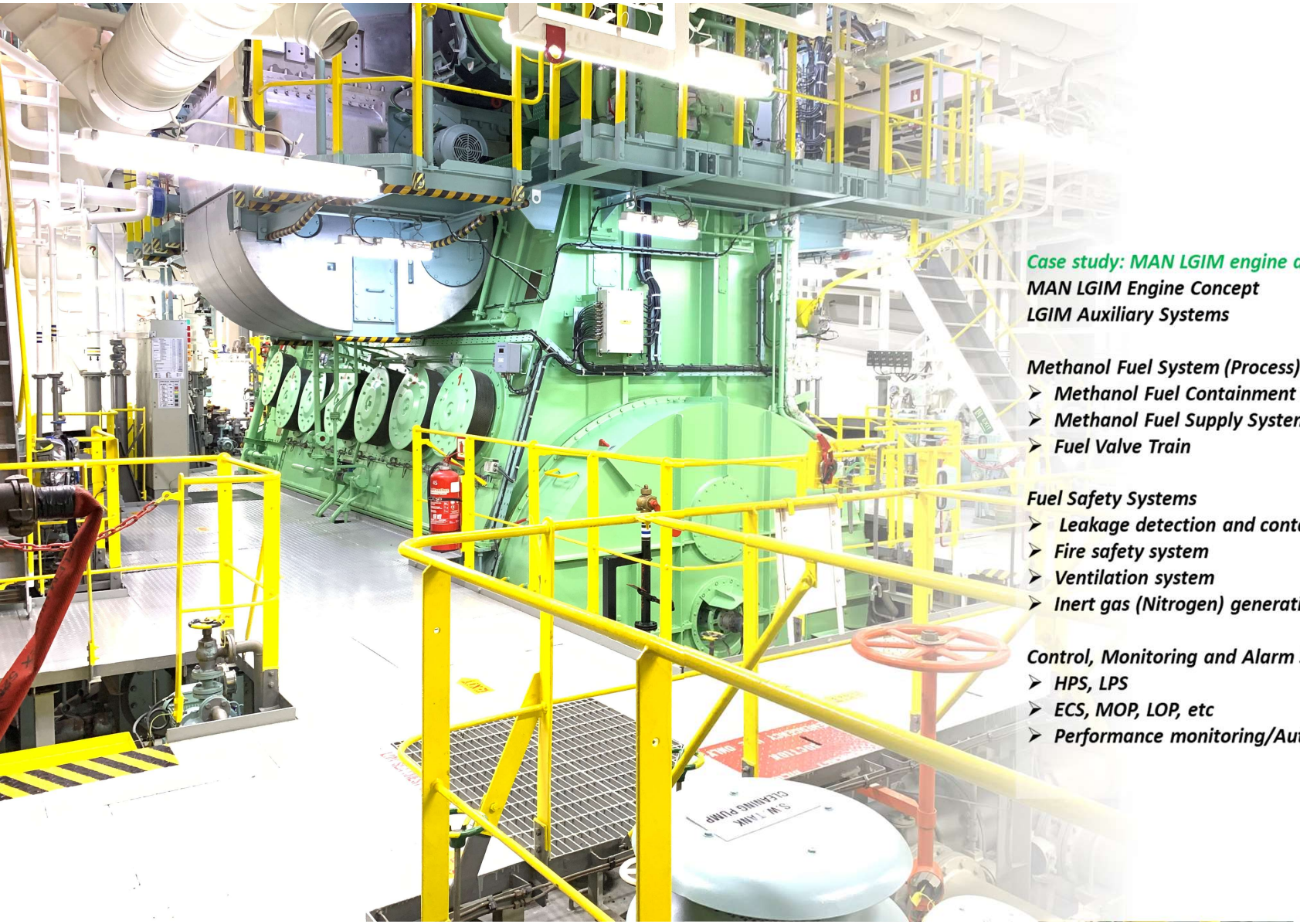
BASIC
General Information

Methanol Chemical & Physical Properties
This section discusses the chemical characteristics of methanol focusing on key traits such as volatility, vapor density, toxicity, corrosivity, solubility, flammability, and flashpoint. Operators must be aware of these unique properties to be able to transport, store, and use methanol safely.

Methanol Production & Methanol Use & Application
This topic will discuss methanol production from coal, natural gas, biomass, & carbon capture highlighting methanol production pathways & the different types of methanol. Production of methanol from renewable feedstocks greatly lowers greenhouse gas intensity. This section will cover several chemical processes that use large portions of the methanol produced worldwide. Emerging applications of methanol such as liquid fuel to power vehicles and ships makes methanol a remarkably useful material.

Methanol as a Marine Fuel
Methanol is becoming a more popular prospective fuel to be used in the decarbonization of ships. It can be produced using potential non-fossil fuel power sources increasing its environmental acceptability. This section will discuss the advantages & disadvantages of methanol as a marine fuel.



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Case study: MAN LGIM engine and related systems

MAN LGIM Engine Concept

LGIM Auxiliary Systems

Methanol Fuel System (Process)

- *Methanol Fuel Containment System*
- *Methanol Fuel Supply System*
- *Fuel Valve Train*

Fuel Safety Systems

- *Leakage detection and containment*
- *Fire safety system*
- *Ventilation system*
- *Inert gas (Nitrogen) generation and safety system*

Control, Monitoring and Alarm Systems

- *HPS, LPS*
- *ECS, MOP, LOP, etc*
- *Performance monitoring/Automatic/Manual tuning*

Training Venue Options

Our training program offers versatile options to suit your preferences:
Online Training: Seamlessly accessible through digital platforms.
Onsite Training: Conducted at a location of your choice, tailored to your convenience.
Onboard or Shipyard Training: Delivered directly onboard or at the shipyard, providing a practical learning environment.

Educational Resources

Our training regimen incorporates engaging presentations and informative videos as integral components of the lecture format.

Facilitators

Our course is steered by adept individuals who possess extensive knowledge and hands-on experience in ship design approval, shipbuilding supervision, and the operational management of methanol dual-fueled ships. These skilled professionals, formerly masters, chief engineers, technical managers, and shipbuilding supervisors for such vessels, bring a practical and insightful perspective to the training.

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Duration

Specialized Training in Methanol BASIC	**2 days (16hrs)**
Specialized Training in Methanol ADVANCED	**2 days (16hrs)**

Customized training solution available upon request

Approvals and Recognitions

- DMA Approved
- MPA Approval in Progress
- MARINA Recognized
- Class Recognized
- Endorsed by Industry Partners

TRAINING CLIENTS

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Contact info

Denmark

Fredrik Stubner
+46 702070771
fs@greenmarine.dk
www.greenmarine.dk

Singapore

Donnie Bagang
+65 92970922
db@greenmarine.sg