ABS TRAINING SOLUTIONS

FOR EMERGING TECHNOLOGIES

ABS courses are used by many of the industry's leading shipowners to enhance the operational safety and performance of their assets.

ABS is committed to being your training partner. This commitment means providing courses that extend beyond the traditional curriculum and present you with training solutions to address your needs.

Designed to meet the technical and management needs of shipowners, managers, and operators of marine and offshore assets, ABS' targeted training features best practice applications for design and operations.

AMMONIA AS MARINE FUEL

Ammonia is one of the most promising future fuels in the maritime world. When produced renewably, it is a zero-carbon fuel, enabling ships to eliminate CO_2 emissions. This three-day course covers the advantages of using ammonia as a marine fuel, including its zero-carbon footprint and availability.

Environmental regulations from the International Maritime Organization and countries around the globe are requiring ships to decrease emissions of sulfur and nitrogen oxides and carbon dioxide. Ammonia is an alternative fuel that meets tightening emission standards.

COURSE DURATION: 3 DAYS

A WEB-BASED INTRODUCTION COURSE IS ALSO AVAILABLE: 4 HOURS

HIGHLIGHTS

In this interactive three-day course, experienced instructors will take participants step by step through the operational and technical aspects of operating ammonia-fueled vessels.

- Alternative fuel considerations
- Ammonia as marine fuel
- Health and safety concerns for ammonia
- Overview of Rules and regulations
- Design risk assessment
- Ammonia-fueled engines
- Ship design and arrangement
- Fuel containment system
- Fuel supply system
- Control, monitoring, and safety systems
- Fire safety and explosion prevention
- Ammonia bunkering operations
- ABS survey activities

METHANOL AS MARINE FUEL

Governments and stakeholders worldwide are looking to reduce dependency on conventional fuels and reduce emissions to help improve air quality and protect the environment. As a low-flashpoint fuel, methanol is drawing wider interest from ship owners and operators opting to reduce their carbon footprints.

Environmental regulations from the International Maritime Organization and countries around the globe are requiring ships to decrease emissions of sulfur and nitrogen oxides and carbon dioxide. Methanol is a clean burning, biodegradable, and economical alternative fuel that meets tightening emission standards and is readily available around the globe.

COURSE DURATION: 3 DAYS

A WEB-BASED INTRODUCTION COURSE IS ALSO AVAILABLE: 4 HOURS

HIGHLIGHTS

In this interactive three-day course, experienced instructors will take participants step by step through the operational and technical aspects of operating methanol-fueled vessels.

- Alternative fuel considerations
- Methanol as marine fuel
- Health and safety concerns for methanol
- Overview of Rules and regulations (including IGF Code and interim guidelines)
- Design risk assessment
- Ship design and arrangement
- Fuel containment system
- Fuel supply system
- Methanol-fueled engines
- Fire safety and explosion prevention
- Control, monitoring and safety systems
- Methanol bunkering operations
- ABS survey activities

LNG AS MARINE FUEL

LNG is a cleaner-burning fuel that is increasingly being used as marine fuel. There are significant advantages to switching to LNG as fuel, including meeting regulatory requirements, offering enhanced competitiveness, improving overall air quality, and reducing emissions.

LNG is increasingly being used as a marine fuel due to its environmental benefits . The use of LNG as a marine fuel can reduce sulfur oxide (SOx) emissions by nearly 95%, nitrogen oxide (NOx) emissions by 85%, and particulate matter (PM) emissions by 98% compared to heavy fuel oil. The use of LNG as a marine fuel also reduces greenhouse gas (GHG) emissions by up to 25% compared to heavy fuel oil .

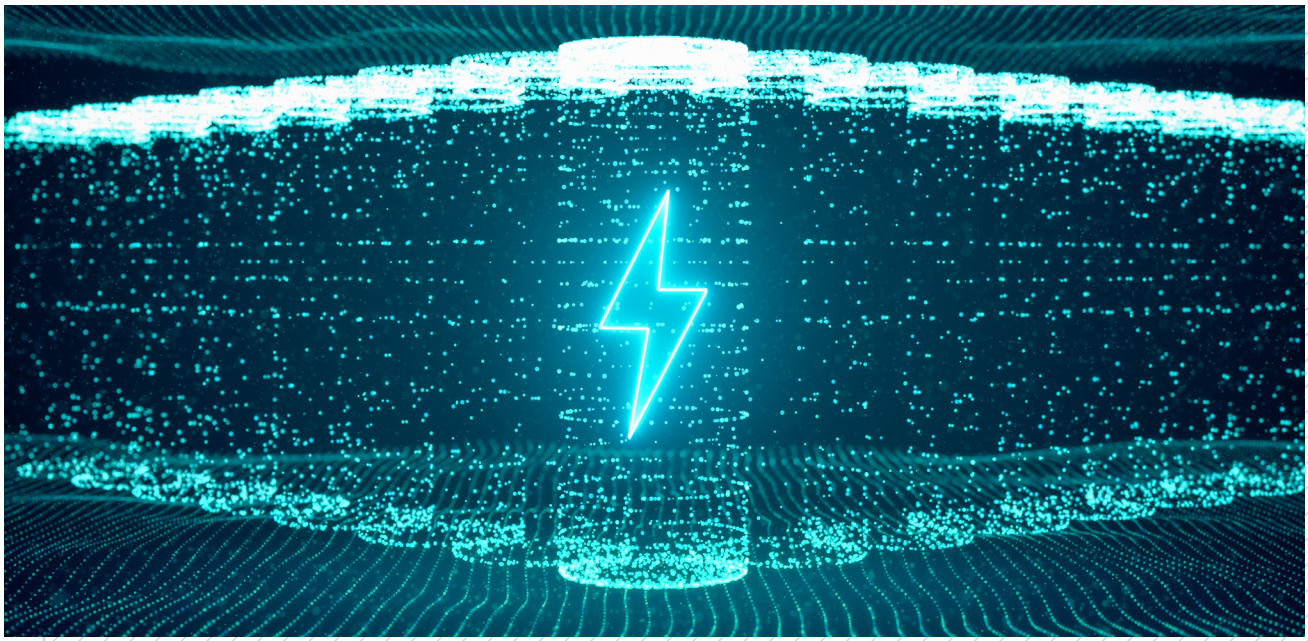
COURSE DURATION: 3 DAYS

HIGHLIGHTS

In this interactive three-day course, experienced instructors will take participants step by step through the operational and technical aspects of operating LNG-fueled vessels.

- Alternative fuel considerations
- LNG as a marine fuel
- Health and safety concerns for LNG
- Overview of Rules and regulations
- Design risk assessment
- LNG-fueled engines
- Ship design and arrangement
- Fuel containment system
- Fuel gas supply system
- Control, monitoring and safety systems
- Fire safety and explosion prevention
- LNG bunkering operations
- ABS survey activities

BATTERIES AND ELECTRICAL PROPULSION



Lithium-ion (Li-ion) batteries are currently the most prominent battery technology in maritime applications. Batteries can be used in various applications, like peak-shaving in hybrid systems, to help engines work at optimal loading and increase efficiency. They can also be used to run motors or as a backup power source to reduce generator load.

Reducing fuel consumption through hybrid systems can greatly reduce emissions to meet environmental requirements. Battery technologies must be developed to provide the needed power for hybrid systems to be effective, efficient, and sustainable.

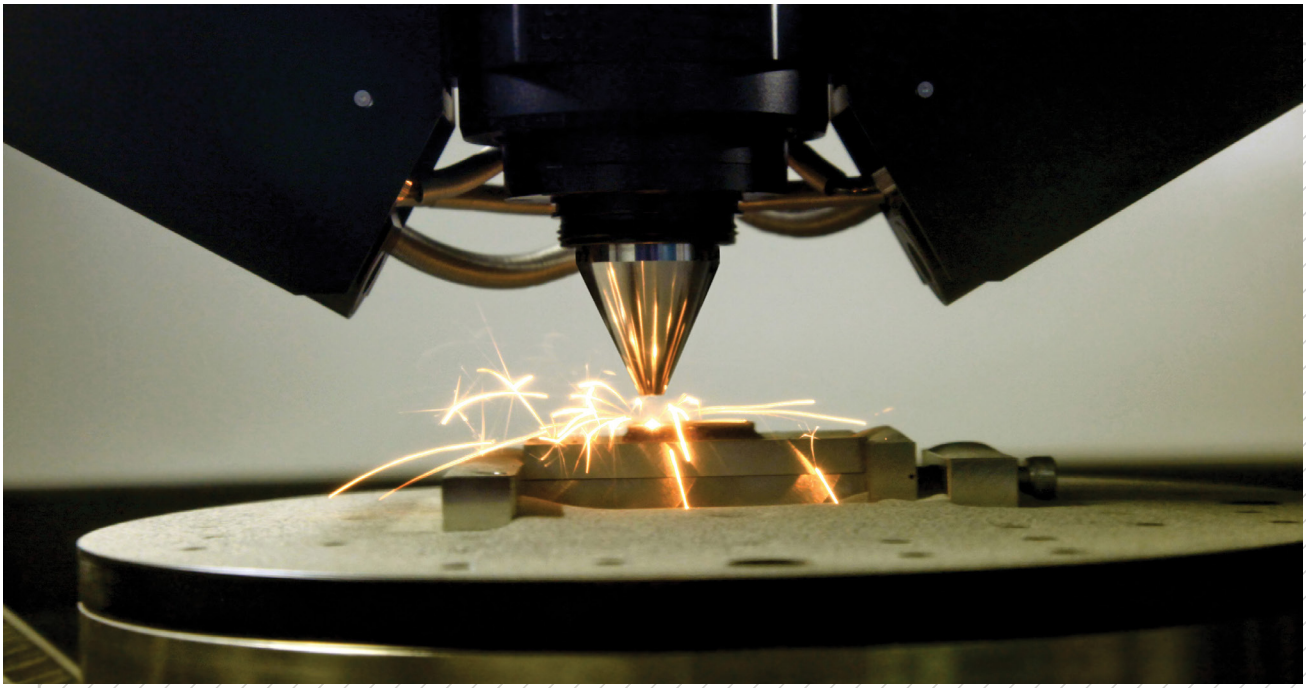
COURSE DURATION: 1 DAY

HIGHLIGHTS

In this interactive one-day course, participants will learn how using Li-ion batteries can reduce fuel costs for propulsion and electric power generation. The course will enable participants to:

- Identify the fundamental mechanisms and components of batteries and compare battery chemistries and properties.
- Recognize requirements for using lithium-ion batteries on marine and offshore units, including battery management system software as a computer-based system.
- Recall various energy storage systems for batteries and principles of battery charging and discharging.
- Describe approaches and requirements for lithium-ion battery fire safety based on prevention, detection, containment, suppression, and emergency response.
- Recognize survey requirements for using lithium-ion batteries on marine and offshore assets, including optional notations

ADDITIVE MANUFACTURING



Additive manufacturing (AM), or 3D printing, refers to multiple manufacturing processes that build parts by adding material layer-by-layer, thereby replacing or augmenting more traditional manufacturing processes such as casting and forging. AM can shrink the supply chain and lead times for specialized and complex parts, introducing new efficiencies driven by design innovation, reduced manufacturing time, and improvements in part availability.

The expanded capability of AM allows for designs not enabled by traditional manufacturing, like complex structures and hollow, lattice, or honeycomb structures, and implementation of metal AM parts for marine and offshore end-use applications.

HIGHLIGHTS

This interactive one-day course, provides an overview of additive manufacturing for marine and offshore applications. The course will enable participants to:

- Describe additive manufacturing techniques and identify how they are used in the maritime industry.
- Recognize the ABS requirements for additive manufacturing and explain the approval process for facilities and parts.
- Recall design principles for additive manufacturing and identify material parameters used for the design.
- Recognize what is considered a good print quality and reasons for an inferior quality.
- Identify required submittals for facility and part approval.
- Explain approval process for facility and parts.

COURSE DURATION: 1 DAY

MARITIME DECARBONIZATION

Decarbonization challenges present questions for all stakeholders, regulators, ship owners, vendors, and investors. Understanding decarbonization's impact, drivers, and implications are of utmost importance to the shipping industry.

This course focuses on the decarbonization drivers motivated by IMO regulations, financial institutions, multinational charterers, and market-based measures from local and regional authorities that support new vessel construction and retrofits.

- Regulatory Impact
- Beyond Regulations
- Pathways to Sustainable Shipping
- Decarbonization Drivers

ON-DEMAND, WEB-BASED TRAINING: 3 HOURS

HIGHLIGHTS

In this course, you will explore the benefits of decarbonization, including different strategies for reducing emissions, and some of the challenges of low-carbon shipping.

- Alternative Fuels and Energy Sources
- Technology Improvements
- Operational Efficiencies
- Carbon-Reducing Solutions

This course covers ABS sustainability services and solutions, including compliance portals and analytical tools, to support clients with their decarbonization journeys.

- Sustainable Development
- Carbon Intensity Reduction
- Digital Monitoring
- Carbon Accounting

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LOOKING FOR A PRIVATE COURSE?

ABS can customize an instructor-led training course to meet your specific needs. If you have several employees interested in a particular course, talk to us about holding the course onsite at your facility to control costs and improve efficiencies.

For more information, contact your nearest ABS office.