TRAINING PROSPECTUS

Best Practice Training for Marine and Offshore Professionals

ABS

PROFESSIONAL MARITIME TRAINING

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

ABS Training Solutions 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 Training Solutions' targeted training features best practice applications for design and operations.

TECHNICALLY TRAINED EMPLOYEES ARE MORE LIKELY TO HAVE THE CONFIDENCE AND NECESSARY SKILLS TO PERFORM THEIR WORK AT A HIGH LEVEL.

ABS MISSION

The mission of ABS is to serve the public interest as well as the needs of our members and clients by promoting the security of life and property and preserving the natural environment.

TRAINING AT-A-GLANCE

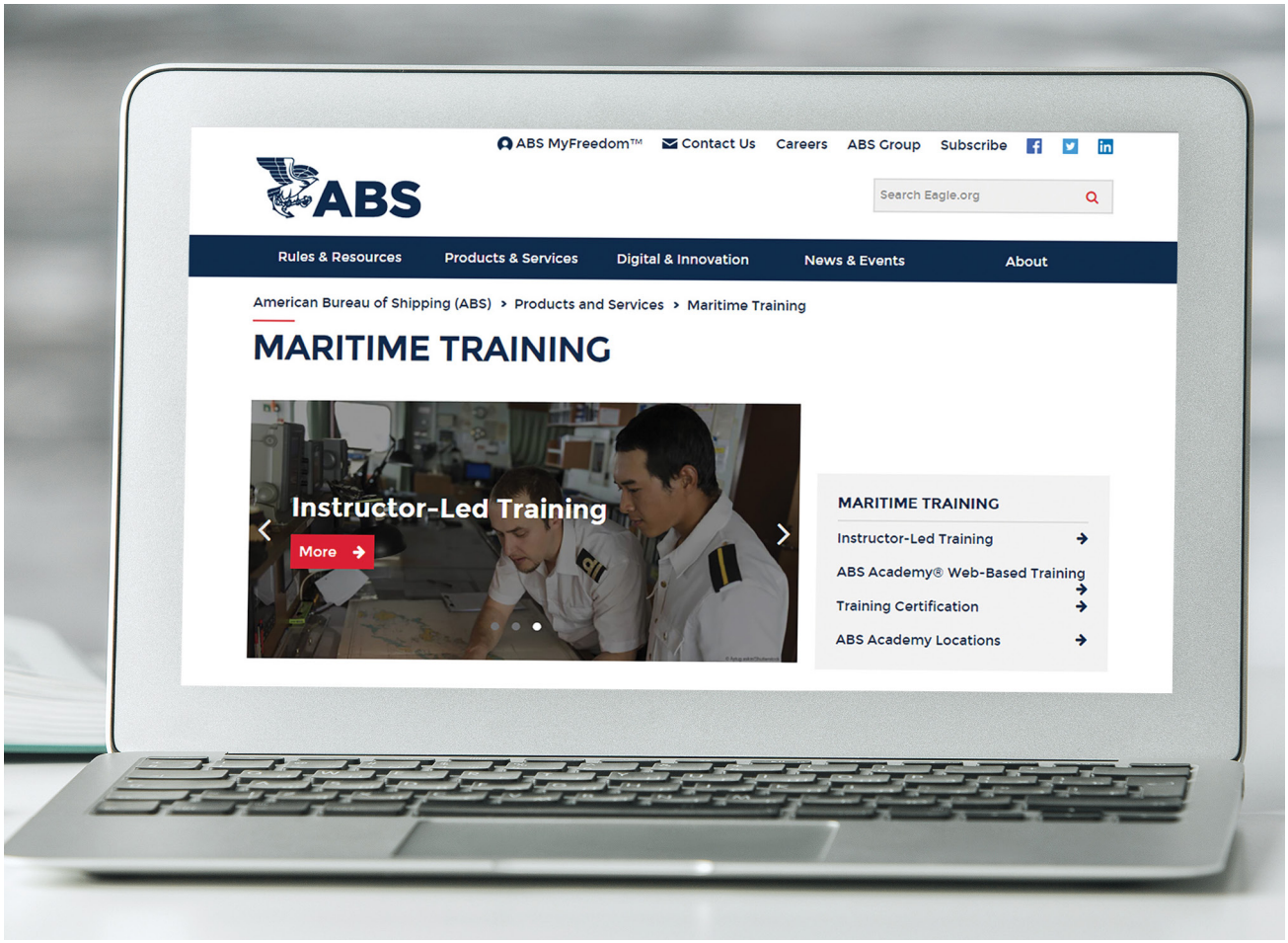
With a rich history of marine and offshore technical expertise spanning more than 160 years, ABS offers an extensive portfolio of instructor-led learning solutions.

ABS Training Solutions provides opportunities for networking with others in the industry, allowing participants to share experiences and views about common issues with their peers. ABS offers a series of specialized training courses delivered by experienced presenters who bring theoretical knowledge and practical application to the classroom.

BENEFITS OF ABS TRAINING

- Solutions-focused training helps participants apply the knowledge gained from training on the job
- Refresher courses provide updates for participants to keep pace with evolving Rules, regulations, and standards
- Post-course support can increase overall satisfaction following

AN ORGANIZATION'S ABILITY TO LEARN AND TRANSLATE LEARNING INTO ACTION IS THE ULTIMATE COMPETITIVE ADVANTAGE.



CLASSROOM TRAINING

MARPOL AND SOLAS REQUIREMENTS

COURSE REG015

Looking for an introduction to MARPOL and SOLAS? This primer covers the concepts, definitions, and requirements, as well as the ABS plan review process for compliance.

Practical examples illustrate solutions to meet the requirements and highlight the most common noncompliance issues.

This course is suitable for designers and shipyard engineers who are seeking knowledge about vessel statutory compliance with MARPOL and SOLAS regulations.

COURSE DURATION: 2 DAYS

HIGHLIGHTS

During this two-day course, experienced instructors will conduct group discussions, so participants gain a better understanding about the regulations.

- Shipboard emergency plans for oil and marine pollution (SOPEP and SMPEP)
- Oily water separating equipment
- Ballast and cargo oil piping
- Intact and damage stability
- Subdivision and damage calculations
- Floodable length and damage stability
- Structural fire protection
- Lifesaving appliances
- Machinery and electrical installations
- Unattended machinery spaces

ISM CODE INTERNAL AUDITOR

COURSE SFT002

Even when the Document of Compliance and Safety Management Certificates are in place, some assets are detained by Port State Control. Are you sure your company's auditors can identify non-conformances ashore and on board ships and offshore units when they conduct safety management system internal audits?

The key is to gain insight by addressing non-conformances identified in corrective action requests, implementing preventive measures, and eliminating technical deficiencies.

This course is suitable for those who have, or may have in the future, duties involving matters of safety and environmental protection and who want to develop a good grasp of how management systems can achieve these goals.

HIGHLIGHTS

During this three-day course, experienced instructors will conduct group discussions and workshops, so that participants will be able to comprehend:

- The content of the ISM Code and its interpretation
- Risk management principles and management systems that underpin the ISM Code
- The principles and current practices used in internal auditing

After the course, participants will be able to:

- Create an audit plan
- Conduct internal audits in a professional manner
- Write comprehensive internal audit reports
- Receive certification as an internal auditor

COURSE DURATION: 3 DAYS

ISM CODE LEAD INTERNAL AUDITOR

COURSE SFT003

This course is suitable for those who have experience in internal auditing. Participants will be provided an opportunity to analyze, discuss, and update their knowledge of the ISM Code and related management systems. Reference is made to relevant IMO developments.

To be considered for this course, participants should have a certificate of completion for an internal auditor course from an IACS society, as well as experience conducting at least three audits as an internal auditor.

The course clarifies the approach to take for auditing and promotes consistency in the decision-making process. The course makes extensive use of case studies.

HIGHLIGHTS

During this three-day course, experienced instructors will conduct group discussions and workshops, so that participants will be able to master these topics:

- ISM Code review, including latest revisions
- Integrity and continual improvement of a safety management system
- Other industry standards
- Non-conformance and report writing
- Auditing techniques and interpreting requirements to support decision making
- Case studies

COURSE DURATION: 3 DAYS

IMPROVING YOUR SAFETY PERFORMANCE

COURSE SFT007

The importance of developing an increasingly informed safety culture has been recognized for some time, particularly in large-scale systems where consequences from losses can be severe. Safety culture is the product of individual and group values, attitudes, perceptions, competencies, and patterns of behavior that determine commitment to an organization's health and safety management.

Three critical components to developing an effective safety culture are commitment from top management, measurement of current performance and behavior, and behavior modification. In a good safety culture, everyone demonstrates safety awareness and responds positively to training.

For companies seeking to improve their safety performance, this course covers causal factors that are related to human error or inappropriate human responses, as well as methods to mature their safety culture metrics in alignment with the ISM Code.

HIGHLIGHTS

Experienced instructors will conduct group discussions and activities so that participants will be able to master these topics:

- Recognize the importance of ISM implementation
- Discuss safety culture models
- Identify actions for improving company safety culture
- Implement policies for safety management system
- Identify potential variances during a walkabout
- Respond to findings using best practices in accordance with the ISM Code

COURSE DURATION: 1 DAY

ISO 9001:2015 QUALITY MANAGEMENT SYSTEMS INTERNAL AUDITOR

COURSE QLT006

Organizations adopt the ISO 9001 standard to organize their quality management processes, improve efficiencies, and continually improve. A quality management systems internal auditor must evaluate if the organization's risk management, governance, and internal control processes are operating effectively.

By completing this course, participants will be able to identify the roles and responsibilities of an auditor; recognize the principles, practices, and types of audits; and develop the skills to plan and conduct an effective audit, take corrective action, follow up and verify, and prepare a proper audit report. Audit techniques will be demonstrated through case studies and group discussions to reinforce understanding, enhance integrity, and promote continual improvement.

HIGHLIGHTS

In this three-day course, participants will learn how to conduct an effective internal audit of a quality management system through interactive case studies and open discussion.

- Overview of ISO 9001:2015 standard
- Quality control and quality assurance
- Process approach and system approach to management system continual improvement (PDCA = Plan-Do-Check-Act)
- Quality management principles and audit process
- Types of audits and basic steps for developing an internal audit program
- Phases of an internal audit, including planning, conducting, reporting, and follow-up and verification
- Identifying the 'Qualified Auditor'
- Audit techniques, including effective communication during audit investigations

COURSE DURATION: 3 DAYS

ISO 14001:2015 ENVIRONMENTAL MANAGEMENT SYSTEMS INTERNAL AUDITOR

COURSE ENV002

Organizations implement ISO 14001 into their overall management system program to improve their environmental performance by efficiently using resources and reducing waste. The role of an environmental management systems internal auditor is to evaluate if the organization's risk management, governance, and internal control processes are operating effectively.

This course helps auditors develop a practical approach to auditing and encourage continual improvement. Emphasis is placed on creating an internal audit program, selecting and training auditors, executing an audit plan, questioning techniques and communications, and properly implementing an environmental management system.

HIGHLIGHTS

In this three-day course, participants will learn how to conduct an effective internal audit of an environmental management system through interactive case studies and open discussion.

- Overview of ISO 14001:2015 standard
- Global environmental concerns
- Identification of aspects and impacts
- Legal and other requirements
- Environmental policy and management programs
- Implementation and operation
- Setting objectives, targets, and performance indicators
- Emergency preparedness and response
- Checking, preventive and corrective action, and management review
- Phases of an internal audit, including planning, conducting, reporting, and audit follow-up and verification
- Identifying the 'Qualified Auditor'
- Audit techniques, including effective communication during audit investigations

COURSE DURATION: 3 DAYS

ISO 45001:2018 OCCUPATIONAL HEALTH AND SAFETY MANAGEMENT SYSTEMS

COURSE OHS003

By implementing an occupational health and safety system, organizations demonstrate they are committed to promoting safety and wellness for their workers. As a result, workplaces are safer, more efficient, more productive, and the costs of work-related injuries and illnesses are reduced.

This course explains the risks and opportunities that can affect an organization's occupational health and safety management system, including internal and external factors and conditions that can affect vessel operations and services.

In addition, marine personnel will understand the relationship between legal compliance and conformance to the standard; risk-based thinking and types of risk assessments; health and safety risk management; and risk management methodology.

HIGHLIGHTS

In this interactive one-day course, experienced instructors explain the process of incorporating the requirements of ISO 45001 into a marine-integrated management system.

- ISO 45001:2018 overview
- Occupational health and safety management principles
- Occupational health and safety for maritime operations
- IMO, ILO, and other interested parties
- Planning, risks, and opportunities
- Resource management and organizational knowledge
- Implementation and operation
- Review and improvement
- Compatibility with the ISM Code and Maritime Labour Convention 2006

COURSE DURATION: 1 DAY

INTEGRATED MANAGEMENT SYSTEMS INTERNAL AUDITOR

COURSE IMS002

Do you know how to structure an audit program for the principal standards for occupational health, safety, quality, environmental, and energy management systems?

Conducting internal audits is a critical activity that contributes to the effective implementation and continual improvement of an integrated management system.

By employing adequate risk control measures, marine and offshore companies are able to develop integrated management system programs to verify proper vessel operations and satisfy competitive market requirements.

COURSE DURATION: 3 DAYS

HIGHLIGHTS

In this three-day course, experienced instructors will take participants step by step through the integrated management system internal audit process. The ABS *Guide for Marine Health, Safety, Quality, Environmental, and Energy Management (HSQEEn Guide)* will be used as a model for implementing marine integrated management systems.

- Identify the requirements of the ABS HSQEEn Guide
- Recognize the requirements for occupational health and safety management systems, including the ISM Code
- Realize the global environmental concerns and the requirements for environmental and energy management systems
- Develop an internal audit program
- Plan and conduct internal audits
- Write effective audit reports, including corrective action and follow-up actions

ISPS CODE INTERNAL AUDITOR

COURSE SEC002

Did you know that a number of vessels have experienced security threats while transiting “hot” sea regions? The risk of a vessel security threat can be reduced through strict adherence to the requirements of a ship security plan, including security internal audits conducted annually per the International Ship and Port Facility Security (ISPS) Code.

Conducting security internal audits is a critical activity that contributes to the effective implementation and continual improvement of a ship security plan.

HIGHLIGHTS

In this interactive two-day course, experienced instructors will take participants through the ISPS Code internal audit process using a practical learning approach.

- Define security fundamentals
- Identify the requirements of ISPS Code Parts A and B, as well as flag State-specific security requirements
- Develop an internal audit program
- Plan and conduct internal audits
- Write effective audit reports, including corrective action and follow-up actions

COURSE DURATION: 2 DAYS

INTERNAL AUDITOR AND NONCONFORMITY REPORT WRITING

COURSE MSS002

Writing effective audit and nonconformity reports remains a challenging task for those involved in the internal audit process. This course benefits personnel involved in the internal auditing process and provides them with an overview of the essentials of good audit and nonconformity report writing.

Through practical exercises and case studies, participants will enhance their skills in producing well-structured, concise, and impactful audit and nonconformity reports. Conducting security internal audits is a critical activity that contributes to the effective implementation and continual improvement of a ship security plan.

HIGHLIGHTS

During this interactive one-day course, experienced instructors will help participants gain knowledge, skills, and awareness about writing more effective reports.

- Conducting an audit
- Identifying and handling nonconformities
- Writing nonconformity reports
- Handling corrective action requests (CARs)
- Internal audit reporting
- IACS and ABS guidelines

COURSE DURATION: 1 DAY

QUALIFIED MARINE ASSESSOR (BASED ON IMO MODEL COURSES 1.30 AND 3.12)

COURSE HF021

With ever-increasing industry requirements and the regulatory framework of the International Convention on Standards of Training, Certification, and Watchkeeping for Seafarers (STCW), shipowners and ship managers need to conduct onboard or shore-based assessments to ensure the ongoing competence of their mariners.

This course is primarily intended for any person conducting an in-service assessment of competence of a seafarer on board. This course combines key topics from IMO model courses for onboard assessment, as well as the assessment, examination, and certification of seafarers. The course covers principles for developing and implementing a shipboard assessment system and methodologies for assessing that seafarers are properly qualified for their specific work positions.

HIGHLIGHTS

In this interactive two-day course, experienced instructors will take participants through best practices for conducting in-service assessments of seafarer competence to confirm that the concepts are clearly defined and understood.

- International provisions for conducting seafarer assessments
- Assessment techniques
- Identification of performance standards
- Assessment of knowledge, skills, and abilities
- Measurement of performance progress based on objectives
- Favorable and unfavorable conditions for assessment
- Using feedback for performance improvement
- Steps for conducting the competence assessment

COURSE DURATION: 2 DAYS

MARITIME LABOUR CONVENTION (ILO MLC, 2006) INTERNAL INSPECTOR

COURSE REG032

The ILO Maritime Labour Convention, 2006 is a comprehensive international employment convention to address seafarers' rights to decent conditions and fair competition for shipowners. The ILO MLC, 2006 creates a level playing field in a globalized industry to ensure that competition is not based on unjust, exploitive, and unfair labor practices.

This course is designed for ship managers, superintendents, and designated company personnel involved in implementing procedures for their organization to maintain compliance with the ILO MLC, 2006.

HIGHLIGHTS

In this two-day course, experienced instructors combine individual exercises with case studies and explain step by step the onboard verification process from the internal inspector's perspective.

- Convention provisions concerning inspections
- Flag and Port State Control inspections for compliance, enforcement, and certification
- Applicable national requirements
- Declaration of Maritime Labour Compliance
- Maritime Labour Certificate
- Guidelines and practical approach for conducting internal inspections concerning maritime labor issues
- Convention provisions for onboard working and living conditions
- Crew complaint handling

COURSE DURATION: 2 DAYS

MARITIME LABOUR CONVENTION (ILO MLC, 2006) AWARENESS

COURSE REG013

Seafarers have not always worked under acceptable conditions, which can affect their health, safety, and well-being. Because their working lives are primarily spent outside their home countries and their employers are also often based abroad, effective international standards are necessary. The ILO Maritime Labour Convention, 2006 (ILO MLC, 2006) is a comprehensive international employment convention to address seafarers' rights to decent conditions and fair competition for shipowners.

This course provides participants with an understanding of the structure of the ILO and the fundamentals of the Maritime Labour Convention, including shipowner's duties and responsibilities to protect seafarers. The course also addresses the requirements for health and safety, as well as accident prevention of seafarers and the appropriate implementation of standards through an effective safety management system.

HIGHLIGHTS

In this one-day course, experienced instructors will take participants through the implementation requirements to confirm that the concepts are clearly defined and understood.

- Development and structure of the ILO
- Novel features of the convention
- Role of the IMO
- Compliance and enforcement
- Shipowner's liability
- Training and qualifications of seafarers
- Conditions of employment
- Health and safety protection and accident prevention
- Flag State and Port State Control responsibilities
- Incorporation of convention requirements into quality and safety management systems
- Implementation benefits and monitoring

COURSE DURATION: 1 DAY

MARITIME LABOUR CONVENTION (ILO MLC, 2006) COMPLIANCE

COURSE REG014

The ILO Maritime Labour Convention, 2006 provides the most comprehensive code to date that addresses seafarers' rights and the obligations of flag States and shipowners with respect to these rights. The Convention incorporates the fundamental principles of many ILO conventions and consolidates and updates standards of 68 existing ILO instruments (conventions and recommendations) into one document.

In this course, participants will learn the requirements contained within the ILO MLC, 2006. Guidance for Maritime Labour Convention, 2006 will be used as reference material.

COURSE DURATION: 2 DAYS

HIGHLIGHTS

In this two-day course, experienced instructors will cover the ILO MLC, 2006 compliance requirements to confirm that concepts are clearly defined and understood.

- Background of the ILO and its structure
- Roles and responsibilities of key players in the ILO MLC, 2006
- Intent and interpretation of the five titles of the ILO MLC, 2006, including mandatory requirements and guidelines
- Inspection and certification requirements to comply
- Introduction to the Declaration of Maritime Labour Compliance
- Examples of manuals and procedures shipowners may choose to develop
- Handling and resolution of deficiencies
- Handling of crew complaints
- Port and flag State issues

TANKER MANAGEMENT AND SELF-ASSESSMENT (TMSA 3) OVERVIEW

COURSE REG025

Developed by the Oil Companies International Marine Forum (OCIMF), the Tanker Management and Self-Assessment (TMSA) program provides companies with a means to improve and measure their safety management systems. Widely used since 2004, the TMSA program was recently updated to provide clarity and make conducting self-assessments easier to promote continual improvement.

This course covers the structure and requirements of the new TMSA 3 program. It addresses the new requirements in comparison with the TMSA 2 version. Participants will become familiar with the process of incorporating the new TMSA 3 requirements into a marine integrated management system, to assess it and promote continual improvement, as well as to perform an onboard TMSA review and verification through typical check list.

TMSA provides a means by which operators can demonstrate a strong commitment to safety and environmental excellence.

This course satisfies the requirements for element 9 of the Tanker Management and Self-Assessment standard.

COURSE DURATION: 2 DAYS

HIGHLIGHTS

During this two-day course, experienced instructors will explain the requirements for TMSA 3. The course features workshops to promote discussion and participation.

- Fast facts and frequently asked questions
- Analysis and structure approach
- Risk assessment
- Introduction to the TMSA 3 elements
- Revised TMSA provisions
- Identifying training needs per TMSA 3 and current industry standards
- Continual improvement
- Onboard TMSA review and verification

TRAIN-THE-TRAINER (USCG ACCEPTED)

COURSE HF018

The International Convention on Standards of Training, Certification and Watchkeeping for Seafarers (STCW) specifies that instructors and assessors are appropriately qualified and experienced in instructional techniques.

Maritime training instructors and assessors will hone their presentation skills and become familiar with training techniques. Participants will formulate training plans, develop training objectives, select learning processes, and design practical assessments. During a workshop session, participants will be videotaped during their presentation delivery.

Based on the IMO model course 6.09 (Training Course for Instructors), this course is accepted by the US Coast Guard (USCG) as fulfilling the intent of NVIC 6-97 and STCW A-I/6.

HIGHLIGHTS

The interactive three-day course is a helpful refresher for experienced instructors and an asset for those with less knowledge about presentation and communication skills.

- Purpose of training
- Process of identifying training needs
- Benefits of training
- Aspects of the learning process
- Setting training objectives
- Designing, planning, and organizing presentations and courses
- Training methodologies
- Presentation and communication skills
- Interpersonal skills
- Assessment techniques
- Evaluation of training

COURSE DURATION: 3 DAYS

EFFECTIVE SAFETY MANAGEMENT SYSTEM IMPLEMENTATION: DPA REQUIREMENTS

COURSE SFT004

The ISM Code recommends that each company assign a designated person ashore (DPA) and DPA Assistant to monitor the safety and pollution prevention aspects of the operation of each ship.

This course provides participants with an understanding of the authority and liability issues of the DPA role. Particular attention is given to the safety management system, planned maintenance system, vessel response plan, and the US Vessel General Permit (where trading to the US is contemplated). Reference is made to current IMO regulations, with a focus on systems, plans, and future trends. Case studies provide practical approaches for avoiding undesirable outcomes.

HIGHLIGHTS

During this two-day course, experienced instructors will explain how to effectively implement safety management systems to align with the DPA requirements. The course features workshops to promote discussion and participation.

- Overview of ISM Code and legal implications
- Pertinent mandatory legislation
- Applicable codes, guidelines, and standards
- DPA's authority and liability
- Assessment techniques for examining, evaluating, and reporting
- Review of safety and integrated management systems
- Maintaining the integrity of a management system
- Audit findings and follow-up actions
- Associated shipboard operations and procedures
- Communications with senior management and shipboard staff
- Promoting a proactive safety culture with safe working practices

DPA

This course satisfies the requirements for element 6 of the Designated Person Ashore standard.

COURSE DURATION: 2 DAYS

MARITIME INCIDENT INVESTIGATIONS

COURSE RM007

Many incidents, hazardous occurrences, and near misses on board maritime assets are caused by human errors and can result in considerable losses.

Learning lessons from incidents and putting preventive measures in place to make sure they do not happen again is the key to loss prevention. To achieve this, it is crucial that the various contributory factors and root causes are properly identified and understood.

Using the ABS Guidance Notes on the Investigation of Marine Incidents, participants will engage in several group activities incorporating the ABS MaRCAT investigation process to classify and identify root causes.

COURSE DURATION: 2 DAYS

HIGHLIGHTS

In this two-day course, experienced instructors will explain the principles covering root cause analysis. Through a series of workshops, participants will be shown a systematic and practical model of an incident investigation program that will help them implement a similar or derived version in their own organizations.

- Describe the fundamentals of incident investigation and the stages involved
- Gather and preserve the data needed to carry out an incident investigation
- Conduct investigation interviews in an effective manner
- Sort and analyze all the various data obtained in the investigation process
- Apply the root cause analysis techniques and identify the causal factors and their root causes
- Prepare an investigation report for the El Faro incident with intermediate causes and recommendations

MARITIME RISK ASSESSMENT

COURSE RM002

Risk assessment is a systematic process to identify potential hazards that could negatively affect an organization's ability to conduct business, analyze what could happen if a hazard occurs, and determine ways to eliminate or control the hazard. For the maritime industry, the risks are primarily those that affect the safety of a vessel, a facility, or an operation.

This course introduces fundamental risk concepts including qualitative and quantitative risk analysis as applied for the maritime industry. Participants will be introduced to common hazard identification and risk estimation. The course is intended to provide decision makers with the tools to make more informed management choices using risk information.

HIGHLIGHTS

During this interactive one-day course, experienced instructors will explain maritime risk assessment so concepts are clearly defined and understood.

- Overview of basic theories and principles of hazard identification and risk assessment
- Description of qualitative and quantitative methodologies
- Review of the capabilities and limitations of each tool and when to use them
- How hazards are ranked and prioritized
- Risk management and mitigation

COURSE DURATION: 1 DAY

RISK ASSESSMENT IMPLEMENTATION

COURSE RM003

This course introduces fundamental qualitative and quantitative risk concepts, common hazard identification (HAZID), and risk estimation. With mock HAZID exercises, participants will learn how to assess and prioritize routine and non-routine risks using a risk matrix.

The course focuses on organizing and managing qualitative risk assessment information.

COURSE DURATION: 2 DAYS

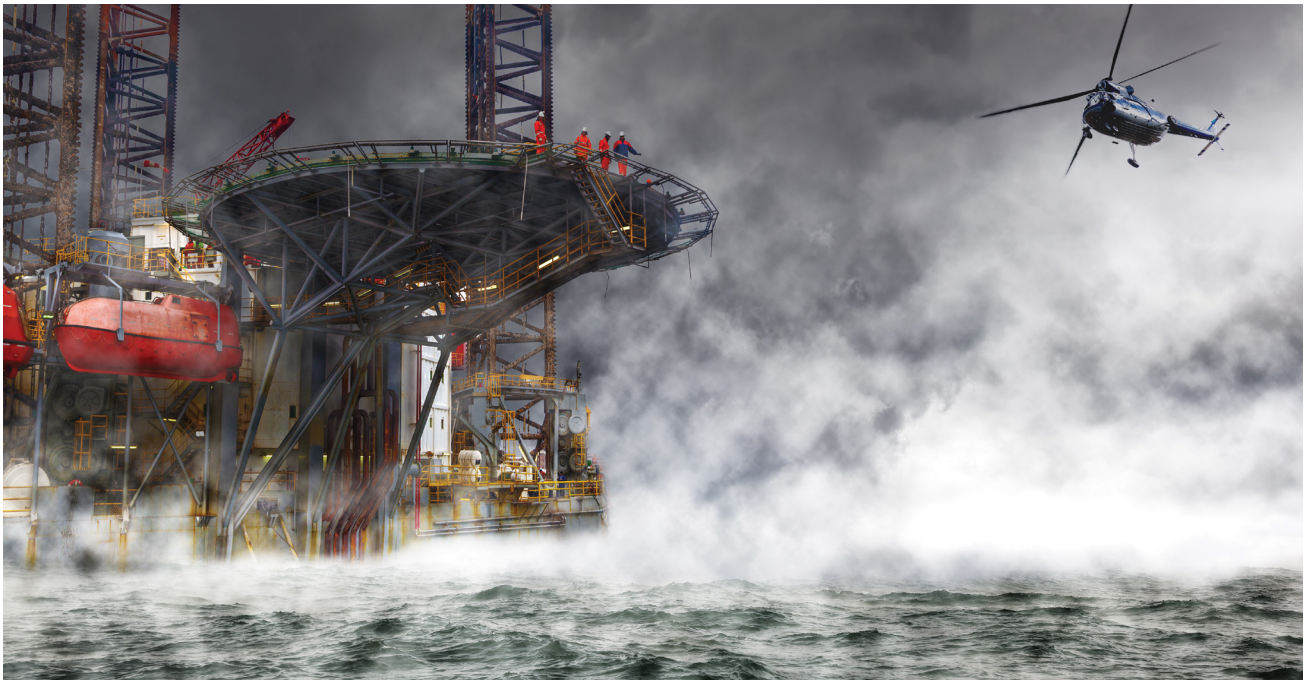
HIGHLIGHTS

During this interactive two-day course, experienced instructors will guide participants through implementing risk assessment tools by using practical examples and workshops.

- Overview of basic theories and principles of HAZID and risk assessment
- Description of qualitative and quantitative methodologies:
  - What-If analysis
  - HAZID
  - Job hazard analysis
- How to decide when to apply risk assessment
- Review of the capabilities and limitations of tools and when to use them
- How to rank and prioritize the hazards
- Risk management and mitigation

MARINE CRISIS MANAGEMENT AND EMERGENCY RESPONSE

COURSE HF005



Contingency planning is a critical activity for organizations and communities to prepare themselves to respond well to a disaster event and its potential impacts. Being prepared for emergencies involves making advanced decisions about managing human, financial, and material resources, and coordinating communication procedures.

The course covers a general spectrum of maritime sectors. The course focuses on organizing a crisis team and assigning resources to resolve problems and introduces predictive techniques.

COURSE DURATION: 1 DAY

Participants will learn how to manage an incident to protect life, the environment, property, and their company's reputation. Methods are introduced to identify the causes and consequences and take measures to minimize the likelihood of the event happening or reduce the impact on the asset or its surroundings.

HIGHLIGHTS

In this interactive one-day course, participants will learn how to establish contingency plans and be able to respond in case of an emergency. Topics include:

- Crisis and emergency management
- Four phases of management
- Emergency organization
- Emergency operations center
- Crisis management plan
- Tiered response and marine claims

BEHAVIOR-BASED SAFETY: AWARENESS AND IMPLEMENTATION

COURSE HF003

Behavior-based safety (BBS) is a broad term used to encompass everything from basic employee behavior audits and feedback to a comprehensive safety management system. The overarching goal is to support or change a company's safety culture.

This course is intended to enhance participants' understanding of the fundamentals of occupational health and safety, as well as concepts and methodology to effectively implement and sustain a BBS system.

Participants will practice observation techniques designed to improve behavior patterns, thereby reducing workplace activity risk.

HIGHLIGHTS

This one-day interactive course includes workshops and case studies to enhance understanding of behavior-based safety.

- Purpose of BBS
- Fundamentals of BBS
- Safety performance and safety culture
- Recognizing at-risk behaviors
- Implementing BBS and observation techniques
- Developing BBS checklists
- Sustaining a BBS system

COURSE DURATION: 1 DAY

ORIENTATION TO NEW CONSTRUCTION CLASSIFICATION AND STATUTORY SURVEYS

COURSE REG001

Marine classification is a verification of compliance to statutory regulations and recognized standards. It protects capital investment, shows responsible stewardship, and meets underwriting requirements. For newbuilds, surveyors attend the vessel during construction and sea trials to confirm construction compliance. Materials and principal equipment, including engines and alternators, are certified at this time.

This course addresses the steps for the classification and certification of a vessel from order to delivery. Participants will be introduced to the roles of engineering and survey for classing new vessels and understand the requirements for plan reviews of hull, machinery, piping, and other vessel systems. Participants will also review Rules, standards, and other regulations related to classification and certification of vessels and understand the scope of surveys during construction.

HIGHLIGHTS

In this two-day course, experienced instructors will explain best practices to prepare for new construction class and statutory surveys to confirm that the concepts are clearly defined and understood.

- What is classification?
- What are statutory requirements?
- Hull Rules and plan review
- Machinery Rules and plan review
- Piping and electrical installations
- Materials and welding
- Nondestructive testing and evaluation
- New construction surveys
- Cargo gear
- Type approval
- Load line
- Tonnage
- MARPOL
- SOLAS

COURSE DURATION: 2 DAYS

ORIENTATION TO IN-SERVICE CLASSIFICATION AND STATUTORY SURVEYS

COURSE REG002

The classification process and its interrelationship with international and flag regulations is not always well understood.

This course, specifically structured for those in a supervisory role within a shipowning, operating, or management company, provides participants with insight into the evolution of classification and statutory requirements, with particular emphasis on in-service surveys.

HIGHLIGHTS

During this two-day course, experienced instructors explain best practices to prepare for in-service class and statutory surveys to confirm that the concepts are clearly defined and understood.

- Evolution of classification societies and IACS
- Scope of classification surveys:
  - Surveyor's role
  - Class surveys
  - Surveys during construction
  - Damage surveys
  - Transfer of class
  - Surveys during sale of vessel
  - Equipment certification
  - Cargo gear surveys
  - Dual/double class
- Relationship between classification and statutory surveys
- Scope of statutory surveys:
  - Delegation of authority by flag Administrations
  - Status of the surveyor during statutory surveys
  - Load line surveys
  - Safety construction, safety equipment, safety radio surveys
  - Intervals and scope
  - MARPOL surveys
  - Other surveys related to statutory work

COURSE DURATION: 2 DAYS

HAZARDOUS AREAS CLASSIFICATION

COURSE DES028

Do you know the common principles behind the various codes and standards for hazardous areas? Learn how failing to address hazardous area issues early in the design process can lead to issues with suboptimal solutions later.

The course highlights how hazardous areas are classified on ships and offshore units. Participants will discuss the criteria and precautions for selecting and installing equipment in hazardous areas based on ABS Rules and industry standards.

Through discussions and exercises, participants will gain insight about how hazardous areas are developed for ships and offshore units.

HIGHLIGHTS

During this interactive one-day course, experienced instructors will examine classification issues for hazardous areas.

- Procedures for designating hazardous areas and application of various codes
- Effect of boundaries, openings, cable penetrations, ventilation, over-pressurization, and air locks
- Principles of key protection techniques and reasons why some techniques are limited
- Designated non-hazardous areas
- Examples of hazardous area identification for different assets and operating areas

COURSE DURATION: 1 DAY

HULL OUTFITTING

COURSE NC003

Do you know the critical issues associated with the various hull outfitting components? Learn how to assess these issues in line with classification and statutory requirements.

This course provides an in-depth discussion about the hull outfitting installation and testing processes associated with the fabrication of steel ships.

Participants will become more familiar with the ABS requirements for installing the hull outfitting items.

HIGHLIGHTS

During this one-day course, experienced instructors will examine classification issues for hull outfitting. Topics include:

- Mooring and towing equipment
- Emergency towing arrangement
- Rudders and steering system arrangements
- Watertight bulkhead doors
- Bow, side shell opening and ramps

COURSE DURATION: 1 DAY

MACHINERY OUTFITTING

COURSE NC004

What are critical issues associated with machinery outfitting components? Learn how to assess these issues in line with classification and statutory requirements.

In this course, the machinery installation and testing process associated with the fabrication of steel ships will be discussed.

Participants will become more familiar with the ABS requirements for installing the main machinery plants and equipment.

HIGHLIGHTS

During this two-day course, experienced instructors will examine classification issues for machinery outfitting. Topics include:

- Propulsion and maneuvering machinery: propellers, thrusters and dynamic positioning systems, propulsion shafting, steering, and reduction gears
- Prime movers: steam turbines, diesel engines, turbochargers, and gas turbines
- Auxiliaries and auxiliary systems: auxiliary boilers and pressure vessels, main propulsion boilers, air compressors and air reservoirs, cargo and ballast pumps, valve remote system, and gas detection system in tankers
- Piping systems

COURSE DURATION: 2 DAYS

DRYDOCKING AND REPAIRS

COURSE OPS015

It's a fact of doing business. Marine vessels are subject to drydocking throughout their service lives. This includes scheduled surveys, unexpected repairs, and unscheduled maintenance.

Marine inspectors, surveyors, and superintendents need to be familiar with the operational and administrative aspects involved in drydocking and repairs, including tenders and contracts.

Through discussions and exercises, participants will become familiar with various facilities and preparation techniques related to classification surveys.

COURSE DURATION: 1 DAY

HIGHLIGHTS

In this interactive one-day course, experienced instructors will take participants through best practices for drydocking preparation and repairs to confirm that the concepts are clearly defined and understood .

- Reasons for drydocking
- Safety precautions during drydock preparation
- Classification surveys during drydock
- Tenders and contracts
- Reports and records after drydock
- Decision making for awarding repair contract
- Shipyard production schedules and daily project management
- Quality control, safety, time constraints, work complexities, and interrelations
- Qualitative and quantitative measures for drydock completion
- Handling extensions of overall repair time

SHAFT ALIGNMENT FOR SUPERINTENDENTS

COURSE OPS012

Although shaft alignment is measured in tenths of a millimeter, a shaft that is out of alignment can disable a ship the size of the tallest skyscraper. Misalignment can occur for a number of reasons. Sometimes loads are carried by just the edge of the bearing, and sometimes loads are transferred completely off one bearing and added to the next.

Because the weight of the shaft is so great, improperly distributed forces can damage the bearings and shaft and even cripple the engine by destroying the main bearing or warping the crankshaft. The whole issue becomes how to calculate bearing offsets to account for hull deflection.

In this course, participants learn the theory behind the ABS Rules for shaft alignment, as well as measurement criteria and tools used during the shaft alignment process. Emphasis is given to practical alignment procedures and mitigation techniques to diagnose and prevent commonly experienced issues.

HIGHLIGHTS

In this interactive two-day course, experienced instructors will take participants through best practices for shaft alignment to confirm that the concepts are clearly defined and understood.

- Shaft alignment from theory to practice
- Alignment-related risks, including cause and effect
- Practical alignment procedures:
  - Sighting through
  - Stern frame boring
  - Bearing slope boring
  - Engine bedplate pre-sagging
  - Gap and sag
  - Reactions measurements
  - Crankshaft deflections
  - Strain gauge installation
- Classification requirements
- Alignment optimization and hull deflections
- Video and live demonstration with the GE Bentley Nevada experimental rotor kit

COURSE DURATION: 2 DAYS

HULL INSPECTIONS FOR SUPERINTENDENTS

COURSE MIN006

The ABS Hull Inspection and Maintenance Program (HIMP) was designed to help shipowners and operators effectively inspect and maintain the hull structures on their vessels. HIMP inspections help shipowners systematically identify, record, examine, and grade hull structure conditions, including defects.

This course provides participants with an understanding of a vessel's critical structural areas for the purpose of periodic surveillance. Shipowners will benefit by learning how to develop an effective hull inspection and maintenance program based on HIMP requirements.

HIGHLIGHTS

In this one-day course, experienced instructors will explain how to structure and conduct an owner's hull inspection and maintenance program in alignment with HIMP.

- Inspection criteria
- Inspection planning
- Inspection technique
- Safety practices, including confined space entry
- Critical areas
- Zoning methodology
- Workshop on grading structure
- Inspection reporting

COURSE DURATION: 1 DAY

HULL INSPECTION AND MAINTENANCE PROGRAM: QUALIFIED INSPECTOR

COURSE MIN005

The ABS Hull Inspection and Maintenance Program (HIMP) was designed to help shipowners and operators effectively inspect and maintain the hull structures on their vessels. Owners' hull inspection and maintenance schemes should be considered a means for maintaining compliance with classification and statutory requirements between surveys.

For vessels enrolled in HIMP, a qualified inspector must be a full-time employee of the owner and trained to carry out visual examinations of vessel hull structures. Inspectors performing HIMP evaluations must be qualified for the vessel type they are inspecting. Inspector qualifications are vessel-type specific and are not transferable between significantly different hull structures.

With this in mind, the course can be structured for vessel-specific types, such as oil tankers (includes FPSOs and FSOs), bulk carriers, containerships, self-elevating drilling units, drillships, and column-stabilized units. Where an owner's inspection team needs to inspect multiple vessel types, the course may be extended to accommodate requirements for various hull structures.

COURSE DURATION: 2 DAYS

HIGHLIGHTS

In this two-day course, participants will learn how structural inspections are conducted to meet the requirements of HIMP using the ABS Nautical Systems Hull Inspection software.

- Loads imposed on the structure through operations
- Response of the structure to imposed loads
- Understanding critical areas
- Typical failures in service including material degradation, mechanical damage, and fatigue
- Understanding shipyard drawings
- Zoning methodology
- Inspection criteria
- Workshop on grading structure by each criterion
- Inspection planning and techniques
- Safety practices including confined space entry
- Workshop on critical areas, inspection data entry, and reporting

WELDING INSPECTIONS FOR SUPERINTENDENTS

COURSE MIN010

Weld quality standards may differ from job to job, but the use of appropriate weld techniques can provide assurance that applicable standards are met. Whatever the standard of quality, all welds should be inspected, even if the inspection involves nothing more than the welder looking after his own work after each weld pass.

A good-looking weld surface appearance is typically considered of high weld quality. However, surface appearance alone does not equal good workmanship or internal quality.

Nondestructive examination (NDE) methods of inspection make it possible to verify compliance to applicable standards on an ongoing basis by examining the surface and subsurface of the weld and surrounding base material.

This course is intended to provide participants with awareness to enable them to conduct basic welding inspections and understand the basics of NDE.

HIGHLIGHTS

In this two-day course, experienced instructors use case studies and workshops so concepts are clearly defined and understood.

- Introduction and overview
- Basics of welding
- Weld joint geometry
- Welding terminology and symbols
- Welding procedures and welder qualification
- Repair welding and surfacing
- Visual inspections
- Overview of NDE methods:
  - Liquid penetrant testing
  - Magnetic particle inspection
  - Ultrasonic inspection
  - Radiography

COURSE DURATION: 2 DAYS

WELDING, METALLURGY, INSPECTIONS, AND NONDESTRUCTIVE EXAMINATION

COURSE MIN011

In manufacturing, welds are commonly used to join two or more metal parts. Because these connections may encounter loads and fatigue during product lifetime, they could fail if not created to proper specification. This course is intended to provide participants with knowledge to carry out welding inspections, appreciate the basics of nondestructive examination, and understand the welding requirements to comply with the ABS Rules.

This course provides an overview of materials and welding technology, current welding evaluation practices for marine construction and repair, and an understanding of the important aspects of steel welding and nondestructive evaluation. The ABS Rule requirements are highlighted with practical examples and case studies to explain the application of the requirements.

HIGHLIGHTS

In this interactive five-day course, experienced instructors explain best practices for conducting welding inspections and nondestructive examination to confirm concepts are clearly defined and understood.

- Introduction to welding and metallurgy
- Steel production and properties
- Mechanical properties of materials
- Basic welding metallurgy
- Heat flow and residual stresses

- Standard tests
- Filler metal selection
- Weld joint geometry and welding terminology
- Welding positions, welds, and welding symbols
- Welding high-strength, low-alloy steel
- Welding discontinuities and welding sequence
- Weld and structure repairs
- Welding procedure specification (WPS)
- Procedure qualification records (PQR)
- Nondestructive examination methods
- Visual inspection

COURSE DURATION: 5 DAYS

ELECTRICAL AND AUTOMATION SYSTEMS

COURSE NC005

Do you know the critical issues associated with installing and testing electrical and automation systems? Learn how to assess these issues in line with classification and statutory requirements.

This course provides an in-depth discussion about installing and testing electrical and automation systems that are associated with the fabrication of steel ships.

Participants will become familiar with the ABS requirements for installation and testing electrical and automation systems.

COURSE DURATION: 2 DAYS

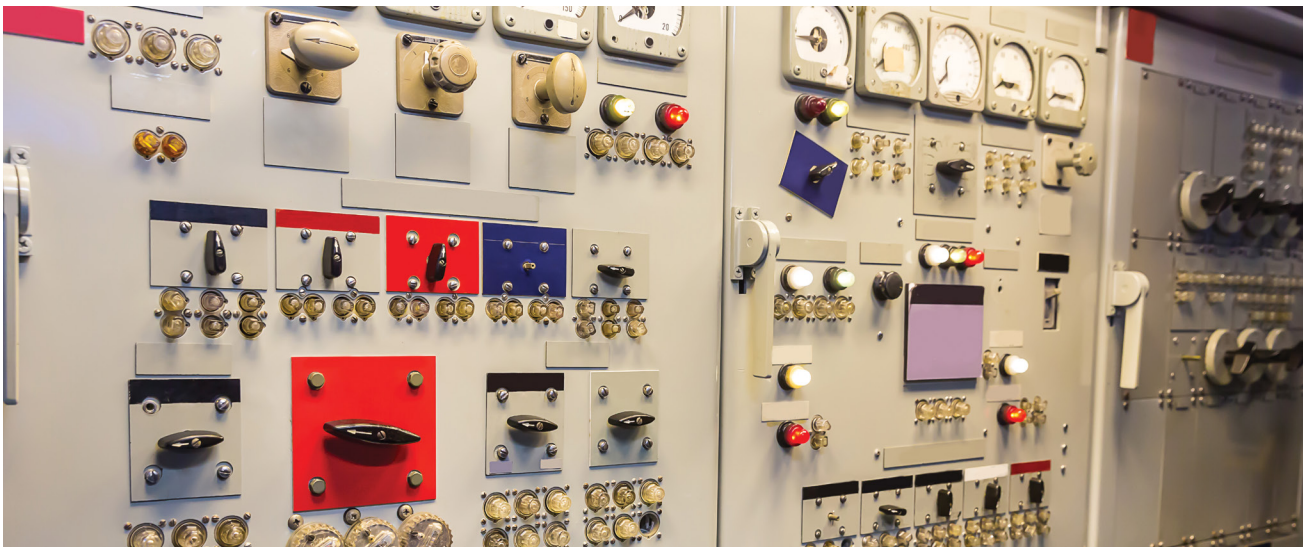
HIGHLIGHTS

During this two-day course, experienced instructors will cover electrical and automation systems. Topics include:

- Electrical load and short circuit analysis
- Protective device coordination studies
- Wiring practices and cable installation
- AC generators and switchboard
- General equipment, IP ratings, and ship-type specifics
- Motor starters and variable frequency drives
- Essential and emergency services
- Drawing submission and test requirements
- Grounding, harmonics, and hazardous areas
- Dynamic positioning
- Automation: Electric propulsion, steering, and PLCs
- Safety issues and high-voltage systems
- New technology: Solar panels, cold ironing, wireless systems and fuel cells

ELECTRICAL EQUIPMENT FOR HAZARDOUS AREAS AND HIGH-VOLTAGE PLANTS

COURSE NC013



High-voltage electrical systems introduce serious exposure risks that are not always obvious. Extreme caution must be exercised when coming into close proximity of high-voltage systems, because exposure to hazards can cause serious injury or even death.

This course covers the main branches of high-voltage technology applied to ship electrical energy and automation systems. Each element of the course reviews high-voltage system components and the procedures for their installation, testing, and maintenance. Components within the high-voltage electrical network, including power generation plants, power distribution switchboards, power earthing schemes, electric protection schemes, and power loads from motors and lighting will be discussed.

Participants will gain a thorough understanding of the reasons why high-voltage technology is applied, the advantages it provides, as well as some disadvantages that have to be carefully taken into account.

HIGHLIGHTS

In this one-day course, experienced instructors will explain the application of electrical equipment in hazardous areas and the advantages and disadvantages of high-voltage technology..

- Reasons to use high-voltage technology
- High-voltage grid configurations
- High-voltage systems and components
- Earthing schemes in high-voltage grids
- Power quality issues with high-voltage systems
- Protection principles
- Power management systems
- Electric propulsion
- Power electronic converters
- Hazards and safety measures for high-voltage systems

COURSE DURATION: 1 DAY

IN-SERVICE CLASSIFICATION AND STATUTORY SURVEYS FOR MODUs

COURSE REG005

Classification is a life cycle approach to the design, construction, and operation of a drilling unit. After delivery, maintenance of class requires periodic surveys to verify that the mobile offshore drilling unit (MODU) remains in compliance with classification Rules and statutory requirements.

Verification of compliance protects capital investments, shows responsible stewardship, and meets underwriting requirements.

This course explains the requirements in the IMO MODU Code and classification Rules from the in-service perspective of the owner of a MODU. In this course, participants will learn what to expect and how to prepare for class and statutory surveys.

HIGHLIGHTS

In this three-day course, experienced instructors use case studies and workshops so concepts are clearly defined and understood.

- Review of oil and gas production and types of units
- Overview of the MODU Code, including certification and documentation requirements
- Application of SOLAS, including bridge and navigation equipment for self-propelled units
- Safety concerns, including passive and active fire protection, firefighting systems, lifesaving equipment, and escape and egress
- Application of MARPOL annexes for pollution prevention
- Application of ISM Code and ILO MLC Convention, 2006
- Application of 33 and 46 CFR
- Practical aspects for classification of drilling systems
- Survey after construction requirements for MODUs
- Practical session on survey planning
- Checklist: Interpretation and use for survey preparation
- Crane maintenance and survey requirements
- Primary and secondary structures, wastage allowances, fatigue, and redundancy
- Welding, materials, nondestructive testing, and welding/fabrication concerns

COURSE DURATION: 3 DAYS

FIRE AND LIFESAVING ASPECTS OF FLOATING OFFSHORE INSTALLATIONS

COURSE DES031

Any fire outbreak on a maritime vessel poses significant risk to the safety of the individuals on board. Unlike a land-based fire, a ship's crew is not able to walk away from a fire at sea and rely on the local fire department to extinguish it. With limited resources, crews may be expected to deal with fire incidents that would test even the most experienced firefighters.

Oil and gas exploration and production at sea require particularly extensive safety measures. Given the hydrocarbon production and processing systems, along with associated utility and safety systems, this course helps participants understand the principal fire and lifesaving safety concerns associated with floating offshore installations.

Particular attention is paid to concepts that are used for overall safety of the facility. Participants will learn about the classification and statutory requirements associated with fire and lifesaving safety that apply to different categories of floating offshore installations.

HIGHLIGHTS

During this interactive two-day course, experienced instructors will guide participants through the requirements for fire and lifesaving on floating offshore installations.

- Applicable classification Rules, statutory requirements, and reference sources
- Overall facility layout including the concept of safe design
- Identification, classification, and separation of potential ignition sources from fuel inventory
- Pool, spray, jet fire, and explosion considerations
- Fire and explosion mitigation techniques
- Underlying principles of structural fire protection
- Safety case requirements and guidance documents
- Principles of escape, evacuation, and rescue, including the safety refuge concept
- Statutory requirements for lifesaving appliances
- Case study on facility design
- Survey of related items during and after construction

COURSE DURATION: 2 DAYS

FPSO/FSO CLASSIFICATION REQUIREMENTS

COURSE REG006

Permanently moored, floating production, storage, and offloading units (FPSOs) are viable development solutions for different offshore field situations. Because FPSOs can be disconnected from their moorings, these offshore production vessels are optimal for areas that experience adverse weather conditions, such as cyclones and hurricanes.

This course addresses the technical issues for the classification of FPSOs and FSO vessels. ABS Rules are used throughout to reference the applicable procedures and standards.

This course is a must for designers, engineers, planners, project managers, owners, and operators involved in the design, supply, installation and operation of an F(P)SO project.

Participants will gain valuable insight into the application of Rules, Guides, standards, and regulations associated with an ABS-classed facility.

HIGHLIGHTS

During this interactive two-day course, experienced instructors will explain the classification aspects for F(P)SO projects. The course features targeted workshops to promote discussion and participation.

- Applicable Rules and regulations
- Load modeling and fatigue
- Initial scantling evaluation and total strength approach
- Dynamic load assessment and spectral fatigue analysis
- Lessons learned for conversions
- Hazardous areas and risk assessment techniques
- Fire and blast modeling
- Safe escape and egress
- Hydrocarbon process or industrial systems
- Process support and marine systems
- Mooring systems and challenges of deepwater mooring
- Design environmental criteria

COURSE DURATION: 2 DAYS

FPSOs/FSOs: STRUCTURAL ASSESSMENT

COURSE DES012

Whether you are converting an oil tanker to a floating production, storage, and offloading unit (FPSO) or building new, do you know what is involved with the structural assessment?

This course is intended for companies considering either a newbuild FPSO or conversion to an FPSO. The requirements associated with the verification of FPSO and FSO structures as outlined in the ABS *Rules for Building and Classing Floating Production Installations* will be discussed.

Participants will be guided through the ABS design review process to facilitate an understanding of how to prepare submissions for classification review.

COURSE DURATION: 3 DAYS

HIGHLIGHTS

During this three-day course, experienced instructors will explain the requirements for structural assessment of F(P)SO projects. The course features targeted workshops to promote discussion and participation. Topics include:

- Overview of ABS ship-type floating production installation requirements
- Initial scantling evaluation (ISE) strength: Midship section scantlings, model generation, transverse bulkheads, longitudinal and main supporting members
- Workshop on midship section design
- Sea environment assessment system (SEAS) modeling: Metocean and design waves, motions, loads, fatigue, and environmental severity factors (ESF) concept
- Workshop on ESF calculations for onsite and history routes
- ISE fatigue damage criteria for critical locations
- Workshop on longitudinal stiffeners and simplified fatigue evaluation
- Finite element analysis (FEA) software demonstration

FLOATING LNG FACILITY CLASSIFICATION REQUIREMENTS

COURSE REG007

Can you fit an entire onshore LNG plant onto a single floating LNG vessel? Floating liquefied natural gas (FLNG) refers to water-based LNG operations employing technologies designed to enable the development of offshore natural gas resources.

This technology is relatively new and there are a lot of questions about the classification and statutory requirements associated with floating offshore gas units.

During the course, participants will receive an overview of ABS classification requirements for FLNG facilities. Particular attention is paid to safety measures for the facility based on the ABS *Guide for Building and Classing Floating Offshore Liquefied Gas Terminals.*

HIGHLIGHTS

During this one-day course, experienced instructors will discuss requirements for floating LNG facility projects.

- Overview of FLNG concepts including proposed projects and major concerns
- Applicable classification Rules, flag and coastal State requirements, and reference sources
- Onboard facilities and layouts, including safe design concept
- ABS novel concept approval process
- Cargo handling
- FEED review
- Special analysis and study requirements
- Safety case requirements
- Lessons learned

COURSE DURATION: 1 DAY

LNG-FUELED VESSELS: TECHNICAL AND OPERATIONAL OVERVIEW

COURSE OPS010

With ship operators facing economic pressures from fuel costs, combined with impending regulations aimed at reducing exhaust gas emissions, particularly for sulfur oxide (SOx) LNG-fueled marine propulsion systems are finding favor.

To help operators, ABS recently relocated its criteria for propulsion and auxiliary systems on gas-fueled ships to its *Rules for Building and Classing Steel Vessels*. This provides a single source for class and statutory requirements for gas-fueled ships other than liquefied gas carriers.

This course provides ship and shore staff with an enhanced understanding of the ABS requirements for LNG-fueled vessels and practical feedback about operating experience.

HIGHLIGHTS

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

- Introduction and ABS classification requirements
- Ship arrangements and system designs
- Fuel bunkering systems
- Fuel gas supply systems
- Reliquefaction units
- Gas combustion units
- Dual-fuel diesel and single gas-fuel engines
- Dual-fuel gas turbines
- Surveys during and after construction
- Operating hazards

COURSE DURATION: 1 DAY

METHANOL AS MARINE FUEL

COURSE AF001

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

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

COURSE AF002

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
- Contol, monitoring, and safety systems
- Fire safety and explosion prevention
- LNG bunkering operations
- ABS survey activities

AMMONIA AS MARINE FUEL

COURSE AF003

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

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.

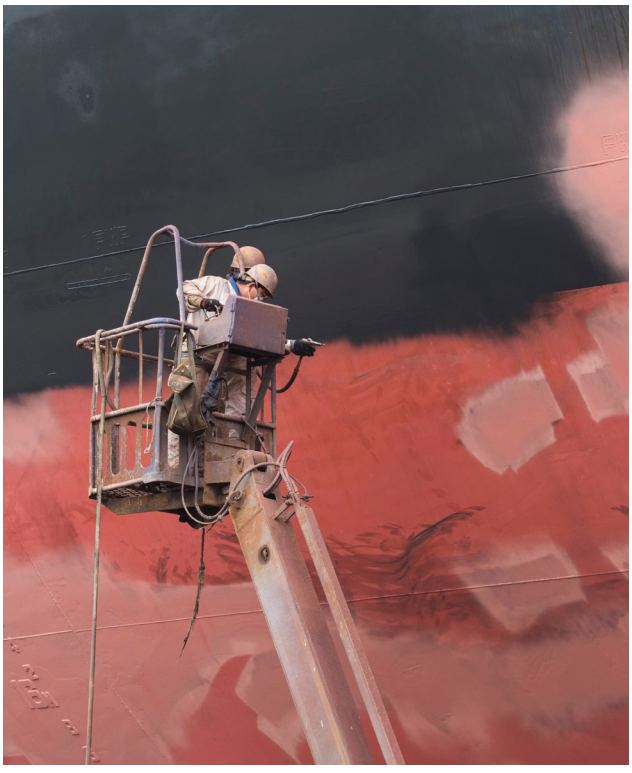
- Alternative fuel considerations
- Ammonia as marine fuel
- Health and safety concerns for ammonia
- Overview of Rules and regulations
- Design risk assessment
- Ammonia-fueled engines
- Ship design and arrangement
- Fuel containment system
- Fuel supply system
- Control, monitoring, and safety systems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

MARINE COATINGS: PRACTICAL IMPLEMENTATION OF PSPC

COURSE MIN015

This course introduces the practical aspects of implementing the IMO's Performance Standard for Protective Coatings (PSPC) and references the theory, where appropriate. There are many pitfalls in the practical application of PSPC, which are not immediately apparent.

The course covers the responsibilities of the involved parties, including coatings manufacturer, coatings inspector, shipyard, and classification society. Participants will learn about what to inspect, how to inspect, how to interpret, and how to take appropriate corrective action in the event of coating failures. Practical issues are dealt with by way of photographic examples. The usage and limitations of the many gauges, tools, and techniques for measuring coatings characteristics are explained.



HIGHLIGHTS

Experienced instructors will cover the IMO's PSPC requirements to confirm that they are clearly defined and understood.

- Responsibilities of parties involved in PSPC
- Role of classification
- Monitoring requirements identified in PSPC
- Recording, collecting, and saving data
- Written statements by the certified coating inspector
- Interpreting coating temperatures and safety data sheets
- Batch numbers on coating cans
- Blasting process elements and required testing
- Monitoring during block building and erection stages
- What is acceptable for welds and sharp edges
- Field test guidance for salt, dew point, adherence, film thickness, and oil/grease
- Paint spraying guidelines: Nozzles, pressures, techniques, effects on coating properties, and correction of over/dry spray
- What to check at the mixing station, during stripe coating and the effect of the overshot use of thinners
- Importance of roughness profile and how it is verified
- Handling joint overlap areas
- Final inspections and review of the coating technical file
- What to do after the completion of the coating process

COURSE DURATION: 1 DAY

INVENTORY OF HAZARDOUS MATERIALS (IHM) ONBOARD

COURSE ENV006

This course introduces the fundamentals of the Inventory of Hazardous Materials (IHM) regulations, including those from the Hong Kong Convention and European Union (EU).

Participants will understand and become familiar with the various regulations from the IMO and EU that are related to IHM, as well as industry requirements and practices, IHM guidelines from ABS and EMSA, and requirements of the EU's Ship Recycling Regulation (SRR). By completing this course, participants should be able to compile and maintain an IHM on board. Through continued practice under the guidance of an experienced IHM expert, participants may become an IHM experts themselves.

HIGHLIGHTS

During this interactive one-day course, experienced instructors will help participants gain knowledge, skills, and awareness about IHM fundamentals.

- Process to become an approved ABS IHM service provider
- Examples of hazardous materials on ships
- Recognizing how IHM can harm human bodies and the environment
- Key requirements under IHM regulations
- Developing an inventory of hazardous materials
- Inspection, survey, and certification process
- Explaining the ship recycling plan and how to develop one

COURSE DURATION: 1 DAY

BALLAST WATER MANAGEMENT

COURSE ENV008

With globalized trade, increased travel speeds, massive volumes of cargo shipments, and a rise in tourism, nonindigenous species are infiltrating the waters. Ballast water and sediments carried by ships are considered a major pathway for transporting harmful and invasive aquatic organisms and pathogens.

In 2004, IMO adopted the International Convention for Control and Management of Ships' Ballast Water and Sediments. Since the adoption, requirements for compliance have evolved, and various ballast water treatment systems have been approved.

COURSE DURATION: 2 DAYS

HIGHLIGHTS

In this interactive two-day course, participants will grasp the regulatory requirements and take steps to plan for and oversee the necessary retrofitting of ballast water treatment systems.

- Understanding how to comply with the Ballast Water Management Convention
- Regional, national, and local regulations
- Ballast water management technologies: Available and approved
- Forming a ballast water management plan
- Selecting a ballast water treatment system
- Case studies for retrofitting systems to different ship types
- Classification issues, including certification and performance, coatings, electrical load capacity, and chemical storage
- New construction considerations
- Crew training

LNG AND GAS CARRIERS FAMILIARIZATION

COURSE GAS001

Not every ship can transport liquefied natural gas. Participants of this one-day course will learn how natural gas works, how cargo containment systems function, how gas carriers operate safely, and how ships transport liquefied gases..

Gas carriers are designed to transport liquefied chemical gases in bulk. They can be grouped into five categories according to the cargo carried and the carriage condition, including fully pressurized ships, semi-pressurized ships, ethylene ships, fully refrigerated LPG ships, and LNG ships.

COURSE DURATION: 1 DAY

HIGHLIGHTS

In this interactive one-day course, participants will distinguish the differences between ships carrying natural gas liquids, liquefied petroleum gas, and liquefied natural gas.

- The introduction to natural gas covers energy demand and natural gas production.
- The overview of cargo containment systems provides the advantages and challenges for each system.
- The safety systems session includes gas detection, emergency shutdown, and fire extinguishing systems.
- Ships carrying liquefied gases comprises the IGC Code and ABS Rules, saturated vapor pressure, and gas carrier design.

INTRODUCTION TO NATURAL GAS LIQUIDS

COURSE GAS002

What's involved in delivering natural gas? This one-day course introduces the science behind natural gas, including characteristics and properties, and the activities and supporting technologies for managing natural gas behaviors.

Natural gas liquids (NGLs) are components of natural gas separated from a gaseous state in the form of liquids. The largest component of natural gas is methane, a compound with one carbon atom and four hydrogen atoms (CH_4). NGLs are hydrocarbons belonging to the same family of molecules as natural gas and crude oil and can be expensive to handle, store, and transport.

COURSE DURATION: 1 DAY

HIGHLIGHTS

In this interactive one-day course, participants will recall the characteristics of natural gas properties based on mass and matter, gas laws, and percentages and molecular weight.

- The introduction to natural gas covers energy demand and natural gas production.
- The natural gas value chains session discusses the value chains for dry and wet gases, gas processing and fractionation, liquefaction, reliquefaction, and regasification.
- The science behind natural gas covers states of matter, gas laws, and gas components based on percentages and molecular weight.
- Ships carrying liquefied gases comprises the IGF Code and ABS Rules, saturated vapor pressure, and gas carrier design.

GAS CARRIER SHIP TYPES AND HAZARDS

COURSE GAS003

Priority #1 is safeguarding the crew, the ship, and the marine environment. This one-day course covers the differences between ships carrying liquefied gas in bulk, cargo hazards and ship survival capabilities, and an overview of safety systems for gas carriers.

Hazards associated with gas carriers include fire and explosion risks due to the flammable nature of the cargo. Cargo is under high pressure and low temperature, which can cause structural damage to the ship if not adequately handled. The cargo is often toxic and can pose a risk to human health if released into the environment.

COURSE DURATION: 1 DAY

HIGHLIGHTS

In this interactive one-day course, participants will recognize the relationship between the temperature, pressure, and volume required for gas carriers to carry cargo safely.

- Ships carrying liquefied gases comprises the IGC Code and ABS Rules, saturated vapor pressure, and gas carrier design.
- The safety systems session includes gas detection, emergency shutdown, and fire extinguishing systems.
- Cargo hazards covers the dangers of liquefied gases, hazardous area zones, equipment arrangements in hazardous areas, and safety measures for liquefied gas.
- To protect the crew, ship, and environment, the IGC Code establishes minimum standards to safeguard cargo tanks from penetration caused by external forces. The ship survival capabilities session covers the carriage requirements for liquefied gas carriers.

CARGO CONTAINMENT SYSTEMS INTRODUCTION

COURSE GAS004

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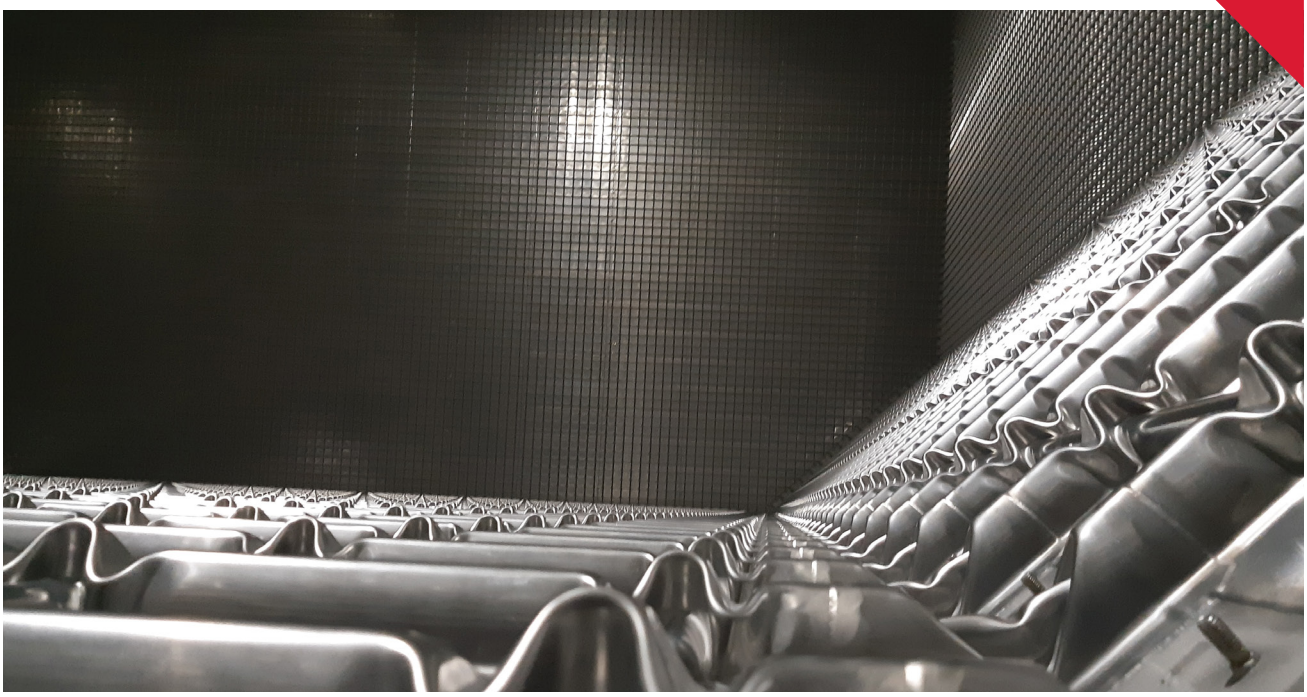


What's the difference between gas cargo containment systems? This course provides an overview of containment systems for safely transporting liquefied gases in bulk, including characteristics, support systems, materials and insulation, and advantages and disadvantages of the different types.

A cargo containment system is the total arrangement for containing cargo including, where fitted, a primary barrier (the cargo tank), a secondary barrier (if fitted), associated thermal insulation, intervening spaces, and the adjacent structure to support these elements, if applicable.

HIGHLIGHTS

In this interactive course, participants will be able to summarize characteristics, support systems, materials, and insulation of cargo containment systems on gas carriers. The course will enable participants to:

- Recognize requirements for Type A cargo containment systems with secondary barriers.
- Describe requirements for spherical and prismatic Type B cargo containment systems.
- Recall requirements for semi-pressurized and pressurized gas carriers with Type C cargo containment systems.

After the ABS portion of the course, GTT subject matter experts will explain ship design requirements for gas carriers with membrane cargo containment systems.

COURSE DURATION: 2 DAYS

GAS CARRIER SYSTEMS AND EQUIPMENT

COURSE GAS005

What's involved with gas cargo operations? This two-day course explains the ship loading and discharging operations cycle from a gas-free condition until a cargo change is planned. Overviews of the systems involved in cargo handling operations will also be covered.

Gas carriers have cargo handling systems designed to handle liquefied gases in bulk. The cargo handling system is responsible for loading and unloading the cargo from the ship, including discharging and control systems featuring main cargo pumps, booster pumps, cargo heaters, level gauging, and a high-level alarm system.

HIGHLIGHTS

In this interactive two-day course, participants will recognize the relationship between the temperature, pressure, and volume required for gas carriers to carry cargo safely. The course will enable participants to:

- Explain the sequence of cargo handling operations and procedures, including preloading, loading, discharging, unloading, preparing for cargo entry, and inspection.
- Recognize the high-level control and monitoring systems and associated tasks within the cargo control room.
- Identify subsystems that provide data to the integrated automation system.
- Describe fabrication and testing requirements for gas carrier piping and cryogenic testing for piping components.
- Explain the certification requirements for cargo pumps, motors, control units, and compressors on gas carriers.
- Recall the function of heat exchangers and types of heat exchangers used on gas carriers.
- Explain how pressure and temperature are monitored on gas carriers.
- Describe pressure control as it relates to gas management for the modern gas carrier.
- Identify the components of inert gas and nitrogen systems and their functions.
- Recognize the type of gauges used for liquid-level measurements on gas carriers.
- Describe the design and operational requirements of gas detection systems.

COURSE DURATION: 2 DAYS

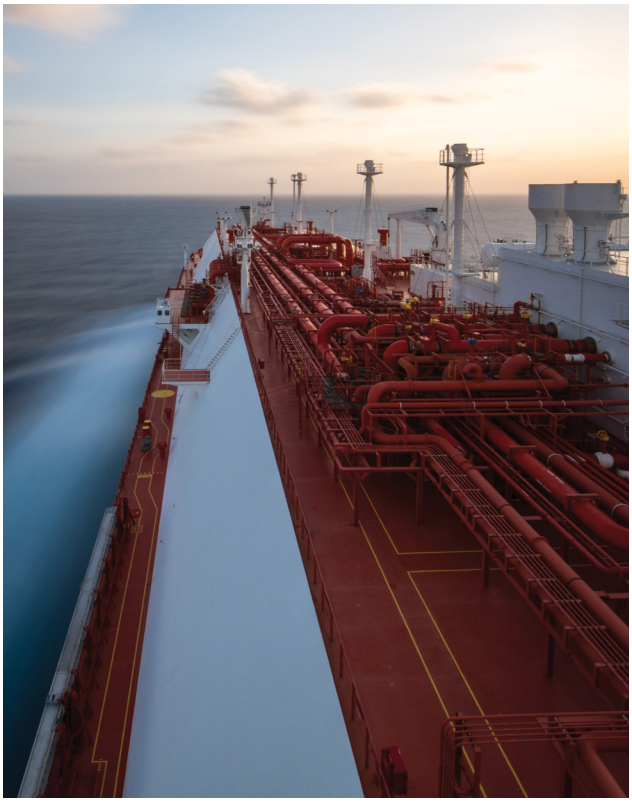
GAS CARRIER FUNDAMENTALS

COURSE GAS006

Become familiar with the safety protocols, emergency procedures, cargo handling techniques, and vessel-specific operations for gas carriers. Understanding the properties of different gases, such as LNG or LPG, is crucial for safe navigation and handling.

This course introduces natural gas and the science behind it, covers safety systems and cargo hazards, explains the ship loading and discharging operations cycle from a gas-free condition until a cargo change is planned, and covers ABS Rules and IGC Code requirements for cargo containment systems and hull design.

COURSE DURATION: 4 DAYS



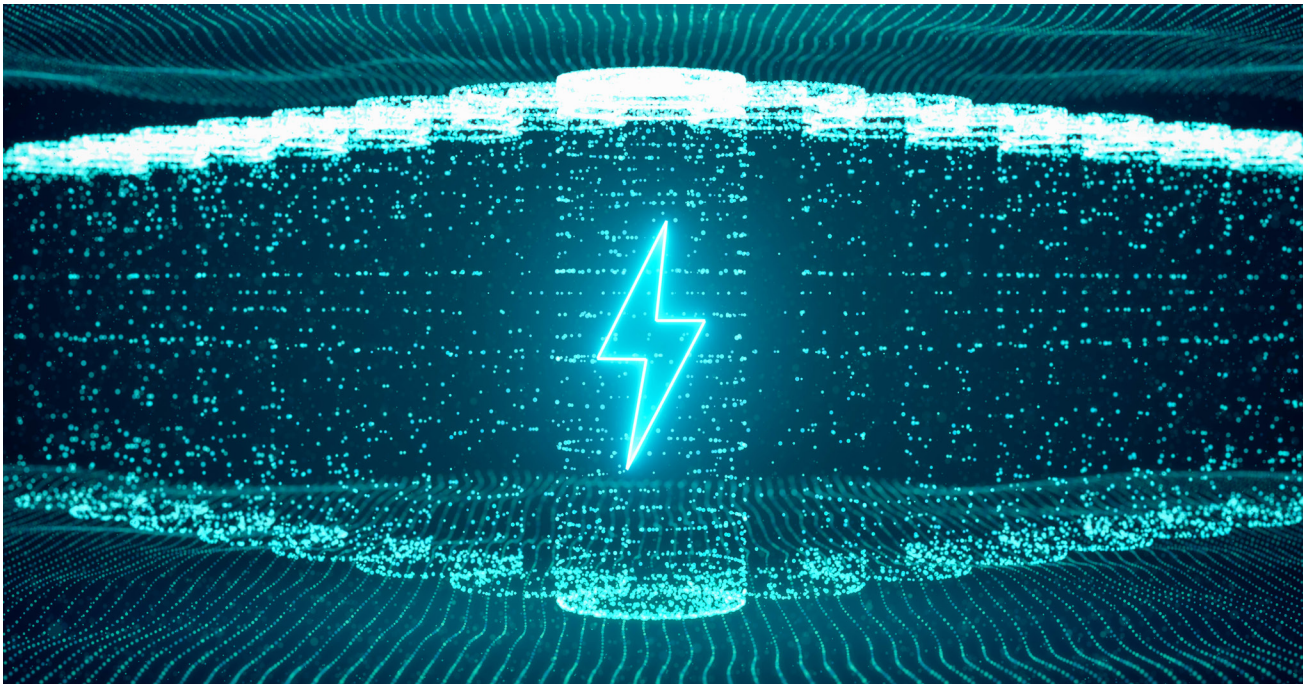
HIGHLIGHTS

This interactive four-day course provides a comprehensive overview to prepare crews and operators to navigate the nuances involved with gas carriers. Participants will be able to:

- Discuss natural gas formation, extraction, and production and explain value chains.
- Recognize gas chemistries and describe the laws that govern gas behavior.
- Identify characteristics of cargo systems carrying liquefied gases.
- Describe the components and requirements of gas carrier safety systems.
- Recall characteristics of cargo containment systems, including materials and insulation.
- Recognize requirements for installed equipment in hazardous areas.
- Explain carriage requirements for ships carrying liquefied gases.
- Identify the IGC Code requirements for gas carrier design and arrangement.
- Recall the components of the Certificate of Fitness for the Carriage of Liquefied Gases in Bulk.
- Explain the sequence of cargo handling operations and procedures.
- Recognize automation concepts on gas carriers and the role of integrated automation systems.
- Recall cargo piping and pump functions.
- Describe characteristics of heat exchangers.
- Explain how pressure and temperature are monitored on gas carriers.
- Identify supplemental boil-off control and purging methods.
- Describe characteristics of heat exchangers, liquid-level measurements, and inert gas and nitrogen systems.
- Recognize functions and requirements of gas detection systems.

BATTERIES AND ELECTRICAL PROPULSION

COURSE DES029



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

COURSE DES030

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

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.

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