WEB-BASED TRAINING

eLearning Solutions for Marine and Offshore Professionals

ABS Academy
PROFESSIONAL MARITIME TRAINING

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

ABS Academy 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 Academy’s 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.

TRAINING AT-A-GLANCE

With a rich history of marine and offshore technical expertise spanning more than 150 years, ABS offers an extensive portfolio of instructor-led and web-based learning solutions.

The purpose of employee learning and development is a new and higher level of performance that supports an organization’s mission objectives and improves business outcomes.

LEARNING MANAGEMENT SYSTEM

The client-facing portal of the ABS learning management system features available courses and curricula.

This site allows for these functions:
- A designated site for your company
- Self-register capabilities
- Browsing and registering for selected courses
- Visibility to registrations and training progress for administrators

AN ORGANIZATION’S ABILITY TO LEARN AND TRANSLATE LEARNING INTO ACTION IS THE ULTIMATE COMPETITIVE Advantage.
WEB-BASED TRAINING

ABS Academy® web-based training curricula that cover technical concepts, operational issues, and classification and regulatory requirements for marine and offshore organizations, including principles related to marine engineering and naval architecture.

With web-based training, geographic boundaries don’t exist. Training material can be accessed at any time and completed or referenced from nearly any location.

Web-based training is more cost-effective than classroom training. Fewer training days are required to complete the same content, as the same material in a classroom could take weeks rather than hours. The material is more consistent with web-based training, as users receive exactly the same information.

In addition, web-based training is easily scalable, allowing a large number of people to complete courses in a matter of hours.

WEB-BASED TRAINING ALLOWS USERS TO LEARN AT THEIR OWN PACE, AT A TIME THAT IS CONVENIENT.

ABS Academy offers subscription-based pricing for web-based training tracks specifically geared to marine or offshore new construction. Clients can also select curricula from our web-based training library to suit their specific learning needs.

In addition, web-based training is easily scalable, allowing a large number of people to complete courses in a matter of hours.

Company-wide access to the courses is available for one calendar year.

MAIN ELECTRIC POWER
(Duration: 8 hours)
- Electrical System Overview
- Power Distribution 1
- Power Distribution 2
- Transformers, Converters, and Shore Connection
- Typical Failures, Procedures, and Ship Requirements

ABS-CLASSED VESSELS: OIL TANKERS
(Duration: 2 hours)
- Oil Tankers: Overview
- Types, Classification, and Regulatory Aspects
- Structural Characteristics, Cargo Handling, and Safety Hazards
- Propulsion, Steering, Equipment, and Systems

HAZARDOUS AREAS
(Duration: 8 hours)
- Hazardous Areas 1
- Hazardous Areas 2
- Hazardous Areas 3

NONDESTRUCTIVE EVALUATION
(Duration: 7 hours)
- Nondestructive Test Certification
- Liquid Penetrant Testing
- Magnetic Particle Inspection Testing
- Ultrasonic Inspection Testing
- Radiography

BLUEPRINT READING AND INTERPRETATION
(Duration: 4 hours)
- Drawing Nomenclature
- Vessel Structures
- Hull Design Drawings
- Machinery Drawings
- Electrical Drawings
- Piping Drawings
- Outfitting Drawings

COMMON ENGINEERING PRINCIPLES AND PRACTICES
(Duration: 11.5 hours)
- Naval Architecture 1
- Naval Architecture 2
- Marine Engineering 1
- Marine Engineering 2
MATERIALS OVERVIEW
(Duration: 22.5 hours)
- Theory of Materials
- Steel Materials 1
- Steel Materials 2
- Non-Metallic Materials 1
- Non-Metallic Materials 2
- Non-Ferrous Materials
- Castings and Forgings
- Materials Testing
- Corrosion and Erosion

QUALIFIED WELDING INSPECTOR
(Duration: 10 hours)
- Material Types and Casting Discontinuities
- Material Properties, Characteristics, and Tests
- Basic Welding Metallurgy
- Weld Joint Geometry and Welding Terminology
- Weld Symbol Types and Test Symbol Types
- Welding Processes
- Welding Discontinuities and Repairs
- Welding Procedure Specification
- Welding Procedure Qualification
- Welder Performance Qualification
- Welding Stress Control

ELECTRICAL SYSTEMS
(Duration: 12 hours)
- Basic Electrical Theory and Principles
- Applied Electrical Concepts
- Electrical System and Installation 1
- Electrical System and Installation 2
- Electrical Automation 1
- Electrical Automation 2

PIPING SYSTEMS: GENERAL
(Duration: 13.5 hours)
- General Piping
- Piping System Components
- Basic Piping Design Requirements
- Piping Installation Requirements
- Specific Piping Material

PORT STATE CONTROL
(Duration: 6.5 hours)
- Introduction to Port State Control
- External Hull and Statutory Document Deficiencies
- Navigation Bridge and Hull Deficiencies
- Machinery Space Deficiencies
- Lifesaving Appliances, Ventilation Systems, and Firefighting Deficiencies
- Post-Detention

THICKNESS MEASUREMENTS FOR VESSELS
(Duration: 6.5 hours)
- Thickness Measurement Concepts and Tools
- General Thickness Measurement Process
- Substantial Corrosion
- Vessel Thickness Measurements

MODU OVERVIEW
(Duration: 3 hours)
- Introduction to MODUs
- Self-Elevating Drilling Units
- Surface-Type Drilling Units
- Column-Stabilized Drilling Units

BASIC DRILLING AND WELL CONTROL
(Duration: 5.25 hours)
- Basic Petroleum Geology and Exploration
- Basic Offshore Drilling
- Basic Offshore Well Construction
- Basic Offshore Well Completion
- Basic Offshore Well Pressure Control
- Onboard Mud Circulation Systems
- Secondary Well Control

THICKNESS MEASUREMENTS FOR OFFSHORE UNITS
(Duration: 6.5 hours)
- Thickness Measurement Concepts and Tools
- General Thickness Measurement Process
- Substantial Corrosion
- Offshore Unit Thickness Measurements

MODU ELECTRICAL SYSTEMS
(Duration: 4 hours)
- MODU Electrical Systems 1
- MODU Electrical Systems 2

MODU PIPING SYSTEMS
(Duration: 6 hours)
- MODU Piping Systems 1
- MODU Piping Systems 2
- MODU Piping Systems 3
MAIN ELECTRIC POWER

Learn the basic characteristics of main electrical power systems on marine vessels and offshore units, as well as ABS plan review requirements for the main electrical system arrangement.

ELECTRICAL SYSTEM OVERVIEW
This course covers the main electrical system arrangement and electrical symbols. A basic knowledge of electrical systems, associated major components, instrumentation, arrangements, and electrical symbols is required to interpret electrical drawings when evaluating electrical systems.

• Main electrical systems and their arrangement
• Principal electric symbols

POWER DISTRIBUTION 1
This course provides ABS requirements for generators, power distribution system arrangements, and power distribution system main components.

• Generators
• Power distribution system arrangements
• Power distribution system main components

POWER DISTRIBUTION 2
This course covers the requirements for cables and circuit protection systems.

• Electrical cables
• Circuit protection systems

TRANSFORMERS, CONVERTERS, AND SHORE CONNECTION
This course explains the requirements for the rating and duplication for main power transformers and converters and instrumentation for connecting to shore power.

• Main power transformers
• Main power converters
• Shore connection

TYPICAL FAILURES, PROCEDURES, AND REQUIREMENTS
This course explains typical failures, emergency shutdown procedures, requirements related to harmonics, and additional requirements related to different types of ships and offshore units.

• Typical failures related to main electrical systems
• Requirements related to general and specific emergency shutdown procedures
• Theory, effects, limits, and mitigation of harmonics
• Additional requirements related to different types of ships and offshore units

OFFSHORE EMERGENCY SHUTDOWN (ESD) SYSTEMS
(Duration: 3 hours)
• Emergency Shutdown Systems: Purpose
• How Emergency Shutdown Systems Operate
• Emergency Shutdown Systems: Components
• Emergency Shutdown Systems: Trigger Conditions
• Systems and Equipment Affected by Emergency Shutdown System
• Verify Effective Operation of Emergency Shutdown Systems

MULTI-CABLE TRANSIT SYSTEMS
(Duration: 15 hours)
• Multi-Cable Transit Systems: System Types
• Multi-Cable Transit Systems: Installations, Repairs, and Maintenance
• Multi-Cable Transit Systems: Millionaire Challenge

CYBERSECURITY FOR AUDITORS
(Duration: 6 hours)
• Introduction to Cybersecurity
• Cybersecurity Basics
• Cyber Risk Management: Approach
• Cyber Risk Management: Threats
• Cyber Risk Management: Vulnerabilities
• Cyber Risk Management: Consequences
• Cyber Risk Management: Threats, Vulnerabilities, and Consequences Activity
• Cyber Risk Management: Control Measures
• Cyber Risk Management and the SMS

CURRICULUM DURATION: 8 HOURS
ABS-CLASSED VESSELS: OIL TANKERS

Recognize oil tankers and their operational characteristics, including typical structures, cargo handling, and safety hazards, propulsion, steering, other equipment and systems, as well as applicable classification and environmental regulations.

OIL TANKERS: OVERVIEW

This course provides an overview of oil tankers:
- Function and operations of oil tankers
- Evolution of oil tankers
- Characteristics of owners, operators, and charterers
- Major shipbuilding characteristics
- Oil trade routes

TYPES, CLASSIFICATION, AND REGULATORY ASPECTS

The course explains the main characteristics of the different types of oil tankers and the classification and basic regulatory environment specific to oil tankers:
- Compare and contrast the main characteristics of the different types of oil tankers
- Describe the classification and basic regulatory environment specific to oil tankers

STRUCTURAL CHARACTERISTICS, CARGO HANDLING, AND SAFETY HAZARDS

The course covers structural characteristics, cargo handling operations, and safety hazards for oil tankers:
- Main structural characteristics of oil tankers
- General arrangement of an oil tanker
- Typical features in the midship section
- Systems and equipment related to oil cargo handling and hazards

PROPULSION, STEERING, EQUIPMENT, AND SYSTEMS

The course explains propulsion, steering, and other typical equipment and systems used in oil tankers:
- Characteristics of propulsion and steering in oil tankers
- Typical equipment and systems for oil tankers

CURRICULUM DURATION: 2 HOURS

COMMON ENGINEERING PRINCIPLES AND PRACTICES

Recognize the basic principles and practices of naval architecture and marine engineering. The curriculum provides an overview of engineering activities, including plan approval for compliance with ABS classification requirements for marine vessels and offshore units.

NAVAL ARCHITECTURE 1

This course gives an overview of the theories behind ship design, the types of materials that are used to build ships and offshore structures, and the way ships and offshore units behave on water. Once you can recall these concepts, you will understand how vessels and offshore units are built to withstand operating conditions:
- Characteristics of ship design
- Geometry and hydrostatics of ships
- Principles of ship motion
- Properties of shipbuilding materials

NAVAL ARCHITECTURE 2

This course explains how ships are designed in order to improve strength, maneuverability, and stability:
- Characteristics of strength and structure of ships
- Characteristics of ship stability
- Characteristics of ship resistance and powering
- Principles of maneuverability and ship control

MARINE ENGINEERING 1

This course provides basic knowledge of the key marine propulsion systems. These concepts aid understanding of the suitability of machinery, equipment, and systems for marine and offshore applications:
- Characteristics of marine propulsion systems
- Types of ship piping systems
- Types of propulsion auxiliary piping systems
- Types of machinery outfitting equipment

MARINE ENGINEERING 2

This course provides basic knowledge of marine engineering control and safety systems and typical hazards that one may expect to find on board. These concepts aid understanding of the suitability of equipment and systems for marine and offshore applications:
- Characteristics of boilers and pressure vessels
- Types of electrical systems and automation
- Types of safety systems
- Types of ship hazards

CURRICULUM DURATION: 11.5 HOURS
HAZARDOUS AREAS

Recognize how to conduct surveys in compliance with ABS classification requirements in hazardous areas on marine vessels and offshore units.

HAZARDOUS AREAS 1
This course provides an overview of classification for hazardous areas:
- Basics of hazardous areas
- Traditional method of classifying ships
- International (IEC) method of classifying ships and MODUs
- Information indicated on hazardous area drawings

HAZARDOUS AREAS 2
This course covers electrical equipment allowed in hazardous areas on ships, the techniques used to protect electrical equipment and the electrical equipment allowed in Zones 0, 1, and 2 on ships and offshore units:
- Traditional method applies to electrical equipment on ships
- Protection techniques are used to protect electrical equipment
- International (IEC) method applies to electrical equipment on ships and MODUs

HAZARDOUS AREAS 3
This course provides basic knowledge and additional instructions related to hazardous area equipment:
- Characteristics of flammable gases
- Important characteristics of the Booklet of Equipment in Hazardous Areas
- Important information related to certification and nameplates

CURRICULUM DURATION: 8 HOURS

NONDESTRUCTIVE EVALUATION

Learn the basic details of nondestructive evaluation and testing methods and principles.

NONDESTRUCTIVE TEST CERTIFICATION
This course will provide you with a basic knowledge of common characteristics, roles, and types of certification related to nondestructive testing (NDT):
- Characteristics of the NDT certification process
- Roles and responsibilities related to the certification process
- Types of NDT certifications

LIQUID PENETRANT TESTING
This course covers requirements for liquid penetrant testing:
- Types of liquid penetrant testing
- How to perform visible liquid penetrant test (fluorescent/non-fluorescent)
- How to perform fluorescent liquid penetrant test

MAGNETIC PARTICLE INSPECTION TESTING
This course covers requirements related to magnetic particle inspection testing:
- Theory of magnetic flux
- Characteristics of particle testing theory
- Characteristics of magnetic particle inspection tests
- Characteristics of stationary magnetic fluorescent particle inspection

ULTRASOUND INSPECTION TESTING
This course provides requirements for ultrasound inspection testing:
- Theory of ultrasound
- Characteristics of ultrasound straight beam
- Characteristics of straight beam testing process
- Characteristics of ultrasound shear wave (angle beam)
- Characteristics of shear wave testing process

RADIOGRAPHY INSPECTION
This course explains radiographic inspection:
- Theory of ionizing radiation
- Characteristics of ionizing radiation process
- Safe practices for radiography testing
- Characteristics of film radiography
- How to evaluate radiograph quality

CURRICULUM DURATION: 5.5 HOURS
Learn the basic characteristics and requirements for reading and interpreting blueprints for marine construction drawings.

BLUEPRINT NOMENCLATURE
This course will provide you with a basic knowledge of drawing symbols and how to read blueprints.
- Line types, symbols, and abbreviations
- Symbols and abbreviations
- Blueprint nomenclature
- Shapes and dimensions
- Ship drawing conventions and notes

VESSEL STRUCTURES
This course will help you recognize vessel structures and provide you with the basic understanding needed to locate the structures in vessel drawings.
- Basic structural components
- Framing systems
- Special structures

HULL DESIGN DRAWINGS
This course covers hull design drawings that may be encountered during vessel construction. Hull design drawings define each structural component's size and shape, and show the connection of components to form a structural system.
- Arrangement drawings
- Detailed component drawings
- Calculations

MACHINERY DRAWINGS
The characteristics of the machinery drawings are introduced. The course features drawing examples for propulsion shafting and rudder system arrangement to highlight the main characteristics of machinery drawings.
- Basic design drawings
- Detailed design drawings
- Other drawings related to structural design

ELECTRICAL DRAWINGS
This course covers the characteristics of the electrical drawings for electrical machinery, equipment and systems. These drawings show the electrical circuits and the physical location for each system, as well as the total power requirement for the vessel.
- System diagram drawings
- Layout drawings
- Calculations

PIPING DRAWINGS
This course covers the characteristics of piping drawings. Divided into three main zones, piping drawings include the specifications and design parameters for piping systems.
- Fabrication
- Welding and testing
- Installation

OUTFITTING DRAWINGS
This course explains the characteristics of outfitting drawings so you will understand how outfitting equipment is assembled and operated. Outfitting equipment includes systems that are not shown on structural, machinery, piping, or electrical drawings.
- Arrangement location
- Detailed drawings:
  - Size and type
  - Model number
  - Dimensions
  - Material
  - Quantity
  - Itemized parts list

CURRICULUM DURATION: 4 HOURS
MATERIALS OVERVIEW

Recognize the basic characteristics and ABS classification requirements of materials for marine vessels and offshore units.

THEORY OF MATERIALS
This course explains the theory of materials, including the chemical and mechanical properties of metal and microstructures of steel. To understand the ABS Rules and requirements for metal materials, you must first learn about the theory of its composition and production.
- Definition of steel
- Chemical composition of steel
- Material properties and tests
- Steel microstructures
- Heat treatment options

STEEL MATERIALS 1
This course covers the properties of steel that are required for complying with ABS Rules and industry standards. This course identifies the product forms and properties of steel.
- Product forms
- ABS grade steel
- Non-ABS grade steel

STEEL MATERIALS 2
This course explains the properties and requirements for stainless steel, special steels and material substitution.
- Stainless steel standards
- Special steel standards
- Material substitution

NON-METALLIC MATERIALS 1
This course provides the characteristics and application of non-metallic materials.
- Non-metallic material application to hull construction, machinery, and structural repairs
- Structural characteristics of non-metallic materials

NON-METALLIC MATERIALS 2
This course covers non-metallic materials production processes including application to piping and pressure vessels.
- Non-metallic materials production processes
- Characteristics of non-metallic piping
- Characteristics of non-metallic pressure vessels

NON-FERROUS MATERIALS
This course will provide you with a basic understanding of non-ferrous materials, including aluminum alloy plates, shapes, and non-ferrous piping.
- Aluminum alloy plates
- Aluminum alloy shapes
- Non-ferrous piping

CASTINGS AND FORGINGS
This course covers castings and forgings and their applications on board ships and offshore units.
- Hull castings and forgings
- Machinery castings and forgings
- Offshore drilling applications
- Pressure vessel applications
- Anchoring and mooring equipment

MATERIALS TESTING
This course covers the mechanical tests used when verifying the quality of materials.
- Types of mechanical tests for materials
- Methods for verifying quality of materials

CORROSION AND EROSION
This course covers material failures due to corrosion and erosion. Due to the nature of the marine environment, corrosion, and erosion of materials are inevitable on board ships and offshore units.
- Characteristics of corrosion
- Characteristics of erosion

CURRICULUM DURATION: 22.5 HOURS
QUALIFIED WELDING INSPECTOR

Learn the basic details of welding metallurgy, design, visual inspection, and welding processes.

MATERIAL TYPES AND CASTING DISCONTINUITIES
This course covers characteristics, types of discontinuities, and ABS requirements related to steel, castings, and forgings.
- Characteristics of steel, castings, and forgings
- Types of discontinuities
- ABS requirements for steel, castings, and forgings

MATERIAL PROPERTIES, CHARACTERISTICS, AND TESTS
This course provides information about materials properties and testing.
- Material property testing:
  - Tensile
  - Hardness
- Weld soundness testing:
  - Bend
  - Fillet break
  - Nick break
  - Toughness
  - Fatigue

BASIC WELDING METALLURGY
This course explains the principles of welding metallurgy, including grain structure, cooling rates, and heat treatment.
- Grain structure of steel
- Grain size and properties
- Cooling rates and structural properties
- Pre-heating and cooling
- Thermal stress relief
- Heat treatment methods

WELD JOINT GEOMETRY AND WELDING TERMINOLOGY
This course covers the types of weld joints and explains how parts are aligned before, during, and after welding.
- Overview of basic weld joints
- Weld joint parts and preparation
- Explanation of types of welds:
  - Groove
  - Fillet
  - Spot/Seam
  - Plug/Slot
  - Surfacing
  - Back
  - Backing
- Weld application terminology:

WELD SYMBOL TYPES AND TEST SYMBOL TYPES
This course explains how to read a welding plan and identify weld and test symbol types.
- Weld symbols
- Test symbols
- Supplementary symbols

WELDING PROCESSES
This course covers a variety of welding processes.
- Shielded metal arc welding
- Gas metal arc welding
- Flux core arc welding
- Submerged arc welding
- Gas tungsten arc welding
- Joint preparation
- Brazing and cutting processes

WELDING DISCONTINUITIES AND REPAIRS
This course explains welding discontinuities and repairs.
- Surface discontinuities
- Surface discontinuity weld repairs
- Weld root discontinuities
- Root discontinuity weld repairs
- Internal discontinuities
- Internal discontinuity weld repairs
- Cracking and cracking repairs

WELDING PROCEDURE QUALIFICATION
This course covers the qualified welding procedure based on ABS criteria.
- Welding procedure qualification
- Welder qualification documents
- Required tests to be performed, as necessary

WELDER PERFORMANCE QUALIFICATION
This course explains the ABS procedure for welder performance qualification.
- Welder performance qualification
- Welder qualification assessment
- Monitoring production welding

WELDING STRESS CONTROL
This course explains welding stress control.
- Heating and cooling effects on weld stresses
- Methods of controlling welding stress
- Weld stress correction techniques
- Welding sequence best practices

CURRICULUM DURATION: 10 HOURS
ELECTRICAL SYSTEMS

Recognize electrical concepts, systems and equipment, and their interdependencies in relation to conducting surveys in compliance with ABS classification requirements for marine vessels and offshore units.

BASIC ELECTRICAL THEORY AND PRINCIPLES
This course provides key concepts for electrical load analysis and the suitability of equipment for marine and offshore applications.
- Electricity
- Short circuits
- Harmonics
- Synchronizing

APPLIED ELECTRICAL CONCEPTS
This course includes concepts for surveying electrical systems.
- Load analysis
- Power generation
- Power distribution
- System earthing techniques
- Protective devices and their coordination
- Emergency systems

ELECTRICAL SYSTEM EQUIPMENT AND INSTALLATION 1
This course covers overviews for specific equipment and installation basics.
- Main power systems
- Transformers
- Motors and motor control
- Generators
- Switchboards

ELECTRICAL SYSTEM EQUIPMENT AND INSTALLATION 2
This course provides overview for specific equipment and installation basics.
- Cables
- Fittings
- Lighting systems
- Batteries

ELECTRICAL AUTOMATION 1
This course explains the purpose and attributes of the key safety-related automation systems, including the survey aspects of installation and testing.
- Fire detection systems
- Communication systems
- Alarm systems
- Shutdown systems
- Navigation systems

ELECTRICAL AUTOMATION 2
This course provides important concepts to understand the survey aspects of installation and testing of the computer-based automation systems.
- System categories
- Software quality control issues
- Equipment suitability
- Records issues
- Survey tasks

CURRICULUM DURATION: 12 HOURS
PIPING SYSTEMS: GENERAL

Learn the basic characteristics of piping systems and their components on marine vessels and offshore units, as well as ABS plan review requirements for piping systems.

GENERAL PIPING
This course provides basic knowledge about piping terminology and design
• Theory of piping systems
• Pipe classes
• Dimensioning of pipes and tubes

PIPING SYSTEM COMPONENTS
This course covers individual piping system components, their characteristics and their ratings
• Main piping components
• Joining
• Other components
• Ratings

BASIC PIPING DESIGN REQUIREMENTS
This course covers the basic piping design requirements in accordance to ABS Rules
• Basic piping design requirements related to
  - Overpressure
  - Instrumentation
  - Metallic pipe design
  - Plastic pipe design
• Typical failures associated with piping systems

PIPING INSTALLATION REQUIREMENTS
This course covers the details and requirements of piping installation. The verification of installation details is fundamental to the safety of piping systems
• General installation requirements
• Bulkhead, deck, and tank-top penetration
• Collision bulkhead penetration
• Overboard connection
• Control of static electricity
• Leakage containment arrangement
• Piping insulation
• Progressive flooding

CURRICULUM DURATION: 13.5 HOURS

PORT STATE CONTROL

Understand the purpose and impact of Port State Control. Recognize deficiencies and mitigation opportunities to reduce detentions.

INTRODUCTION TO PORT STATE CONTROL
In this course, you will learn what ABS is doing to reduce Port State Control detentions and identify communication opportunities for reducing these detentions.

EXTERNAL HULL AND STATUTORY DOCUMENT DEFICIENCIES
In this course, you will be to recognize deficiencies of the external hull and statutory certificates, documents, and records that may lead to detentions.

NAVIGATION BRIDGE AND HULL DEFICIENCIES
In this course, you will discover common deficiencies found with the bridge’s navigation and communication equipment, superstructure, and main decks.

MACHINERY SPACE DEFICIENCIES
This course explores common machinery space deficiencies including emergency generators, steering gears, and engines.

LIFESAVING APPLIANCES, VENTILATION SYSTEMS, AND FIREFIGHTING EQUIPMENT DEFICIENCIES
This course covers common deficiencies for lifesaving appliances, ventilation systems, and firefighting equipment.

POST-DETENTION
This course explains how ABS handles detentions including communication points between ABS, flag Administrations, owners, and Port State Control.

CURRICULUM DURATION: 6.5 HOURS
THICKNESS MEASUREMENTS FOR VESSELS

Understand the basic characteristics and ABS requirements of thickness measurements and how to evaluate and monitor thickness measurements on marine vessels.

THICKNESS MEASUREMENT CONCEPTS AND TOOLS
This course covers common terminology, evaluation and instrument calibration.
- Concept of ultrasonic thickness measurements
- Common terminology associated with thickness measurements
- Characteristics of evaluations
- How to calibrate ultrasonic testing instruments

GENERAL THICKNESS MEASUREMENT PROCESS
This course provides the basic requirements for monitoring, evaluating, and reporting thickness measurements.
- Important concepts for thickness measurements
- How to monitor thickness measurements
- How to evaluate thickness measurement report
- How to report thickness measurement results

SUBSTANTIAL CORROSION
This course covers the requirements for substantial corrosion found when taking thickness measurements.
- How to conduct an expanded scope of survey
- When to obtain additional measurements
- Process of documenting substantial corrosion

VESSEL THICKNESS MEASUREMENTS
This course provides the ABS criteria for thickness measurement for vessels.
- Enhanced Survey Program (ESP) notation
- Enhanced Survey Dry Cargo (ESDC) notation
- Vessels without ESP or ESDC notations

CURRICULUM DURATION: 6.5 HOURS

MODU OVERVIEW

Recognize the basic characteristics and requirements related to mobile offshore drilling units (MODUs).

INTRODUCTION TO MODUS
This course provides basic knowledge of MODUs.
- Typical characteristics and MODU types
- Classification and certification processes, plan approval process and MODU notations
- General aspects of drilling systems
- Applicable classification and statutory requirements

SELF-ELEVATING DRILLING UNITS
This course provides knowledge specific to jackups or SEDUs, including design and operational characteristics and requirements regarding structures, stability, machinery, and safety.
- Legs, footings, and hull
- Jacking and holding, skidding, and the cantilever
- Afloat and elevated stability
- Jacking gear and skidding systems
- Raw water and preload systems
- Lifesaving appliances and access to the water line

SURFACE-TYPE DRILLING UNITS
This course provides knowledge specific to surface-type drilling units, including design and modes of operation, and aspects of drillship and drill barge structures, machinery systems, and stationkeeping.
- Modes of operation
- Moonpool
- Machinery systems
- Stationkeeping

COLUMN-STABILIZED DRILLING UNITS
This course provides knowledge specific to semisubmersibles or CSDUs, including design and operational characteristics and requirements regarding structures, stability, machinery, and safety.
- Loads and other structural issues considered in global structural analysis
- Redundancy analysis
- Factors that influence stability analysis
- Damage stability scenario types
- Ballast systems
- Design angle of inclination for machinery
- Mooring and dynamic positioning
- Launching clearance requirements for lifesaving appliances

CURRICULUM DURATION: 3 HOURS
BASIC DRILLING AND WELL CONTROL

Gain foundational knowledge about the complete fluid pressure control system and learn how the related systems interact and depend on each other. Enhance your knowledge of the geology, processes, and risks involved in the location and exploitation of offshore oil and gas reservoirs.

BASIC PETROLEUM GEOLOGY AND EXPLORATION
This course explains the fundamentals of petroleum geology and oil exploration.
- Characteristics of hydrocarbons
- Basic geology of the formation of hydrocarbon reservoirs
- How geophysics is used to locate a hydrocarbon reservoir
- Potential risks involved in exploratory drilling

BASIC OFFSHORE DRILLING
This course covers the tools, equipment, and processes used to drill and complete an offshore well.
- How an oil well is drilled
- Steps of the drilling process
- Functions of major components of drilling units

BASIC OFFSHORE WELL CONSTRUCTION
This course includes the processes and equipment used to construct an offshore well.
- How an oil well is drilled
- Steps of the drilling process
- Functions of major components of drilling units

BASIC OFFSHORE WELL COMPLETION
This course explains the processes and equipment used to complete an offshore well.
- How to define well completion
- How a well is brought into production

BASIC OFFSHORE WELL PRESSURE CONTROL
This course presents the fundamental principles of well control and describe the causes and characteristics of well control events.
- Fundamental principles of well control
- Function of drilling fluids in well control
- Causes and characteristics of well control events

ONBOARD MUD CIRCULATION SYSTEMS
This course explains mud circulation and conditioning systems onboard MODUs.
- Key equipment
- Delivery and mixing systems
- Mud circulation system
- Mud conditioning system
- Subsea mud circulation

SECONDARY WELL CONTROL
This course provides knowledge about required secondary well control actions when primary well control is no longer possible.
- Overview of primary and secondary well control
- Securing the well
- Restoring primary well control
- Subsea drilling units

CURRICULUM DURATION: 5.25 HOURS
THICKNESS MEASUREMENTS FOR OFFSHORE UNITS

Understand the basic characteristics and ABS requirements of thickness measurements, and how to evaluate and monitor thickness measurements on MODUs and other offshore units.

THICKNESS MEASUREMENT CONCEPTS AND TOOLS
This course covers common terminology, evaluation, and instrument calibration.
- Concept of ultrasonic thickness measurements
- Common terminology associated with thickness measurements
- Characteristics of evaluations
- How to calibrate ultrasonic testing instruments

GENERAL THICKNESS MEASUREMENT PROCESS
This course provides the basic requirements for monitoring, evaluating, and reporting thickness measurements.
- Important concepts for thickness measurements
- How to monitor thickness measurements
- How to evaluate thickness measurement report
- How to report thickness measurement results

SUBSTANTIAL CORROSION
This course covers the requirements for substantial corrosion found when taking thickness measurements.
- How to conduct an expanded scope of survey
- When to obtain additional measurements
- Process of documenting substantial corrosion

CURRICULUM DURATION: 6.5 HOURS

MODU ELECTRICAL SYSTEMS

Recognize the basic characteristics and requirements of electrical systems and equipment specific for MODUs.

MODU ELECTRICAL SYSTEMS 1
This course provides basic knowledge of types and general requirements of MODU electrical systems and equipment.
- Types of MODU electrical systems and equipment
- General MODU electrical requirements
- Hazardous areas classification
- Requirements related to main and emergency source of power

MODU ELECTRICAL SYSTEMS 2
This course covers the classification and statutory requirements for major electrical systems on MODUs. Typical failures related to MODU electrical systems and equipment are explained.
- Ballast system power and control systems
- Jacking power and control systems
- Electrical equipment in hazardous areas
- Equipment installation and arrangement
- Emergency shutdown (ESD) arrangements
- Fire and gas detection systems
- Emergency control stations
- Harmonics analysis

CURRICULUM DURATION: 4 HOURS
MODU PIPING SYSTEMS

Understand the basic characteristics and requirements of piping systems specific for MODUs.

**MODU PIPING SYSTEMS 1**
This course provides basic knowledge of types and general requirements of MODU piping systems.
- Types of marine and utility piping systems
- General MODU piping requirements
- Requirements related to tank vents, sounding pipes, and tank overflows

**MODU PIPING SYSTEMS 2**
This course covers the requirements related to major marine and utility piping systems for MODUs.
- Bilge systems
- Ballast systems
- Fuel systems
- Lubrication oil systems

**MODU PIPING SYSTEMS 3**
This course covers the requirements related to other marine and utility piping systems for MODUs with an explanation of industrial piping systems related to drilling operations.
- Engine exhaust systems
- Engine starting air systems
- Cooling-water systems for internal combustion engines
- Helideck refueling systems
- Hydraulic systems
- Pre-load system
- Raw-water system
- Well testing
- Leak detection system
- Housekeeping bilge system
- Low-pressure mud (LP mud) system
- High-pressure mud (HP mud) system
- Tensioner system
- Bulk air system
- Base oil system
- Drill water system
- Choke and kill systems
- High-pressure cement system
- Blowout preventer (BOP) hydraulic systems

CURRICULUM DURATION: 6 HOURS

SHAFT ALIGNMENT

Each course builds and seamlessly guides learners through the shaft alignment process with real scenarios and exercises.

**SHAFT ALIGNMENT: INTRODUCTION**
This introduction explains what shaft alignment means, how to prepare for surveys, the relevant procedures for the shaft alignment process, and the various methods that are employed.
- Fundamentals
- Survey Preparation
- Procedures
- Sighting Methods

**SHAFT ALIGNMENT: DRYDOCK**
While each shipyard may follow a different shaft alignment process, this curriculum explains a typical sequence of the procedural steps in drydock or on a slipway.
- Pre-Sighting and Stern Tube Bore Sighting
- Final Sighting of the Stern Tube
- Tail Shaft Clearance Measurements
- Sag and Gap Measurements

**SHAFT ALIGNMENT: AFLOAT**
With the vessel in the afloat condition, bearing reaction measurements are the first indication that shaft alignment is in accordance with reviewed calculations.
- Bearing Reaction Measurements: Part 1
- Bearing Reaction Measurements: Part 2
- Bearing Reaction Measurements: Part 3
- Main Engine Installation and Gear Tooth Contact

**SHAFT ALIGNMENT: SEA TRIALS**
Sea trial testing is the final stage of the shaft alignment process. All shafting and components are installed, and the functionality of the entire system can be tested and confirmed.
- Sea Trials
- Sea Trial Scenario 1
- Sea Trial Scenario 2

CURRICULUM DURATION: 17 HOURS
OFFSHORE EMERGENCY SHUTDOWN (ESD) SYSTEMS

Learn the purpose of the ESD system, how the system operates, the components involved, conditions that trigger the system, how other systems are affected, and how to verify the effectiveness of the ESD system during a survey.

EMERGENCY SHUTDOWN SYSTEMS: PURPOSE
This course explains the purpose of ESD systems:
- Prevent or minimize unwanted release of hydrocarbons from industrial systems
- Mitigate the consequences of such release

HOW EMERGENCY SHUTDOWN SYSTEMS OPERATE
This course covers how ESD systems operate:
- Actions of emergency shutdown systems
- Multiple levels of emergency shutdown for offshore units

EMERGENCY SHUTDOWN SYSTEMS: COMPONENTS
This course covers ESD system components and their functions:
- Automatic and manual activation
- Shutdown actuators
- Signal transfer lines
- Power supply

EMERGENCY SHUTDOWN SYSTEMS: TRIGGER CONDITIONS
This course shows how to recognize major hazards for offshore units that require ESD system activation:
- System activation
- Gas, hydrogen sulfide, and fire detection

SYSTEMS AND EQUIPMENT AFFECTED BY EMERGENCY SHUTDOWN SYSTEM
This course explains how the ESD system interacts with other systems and equipment:
- Main electrical power
- Emergency generator power
- Ventilation systems
- Dynamic positioning and flare systems
- Import and export systems
- Drilling and production systems

VERIFY EFFECTIVE OPERATION OF EMERGENCY SHUTDOWN SYSTEMS
This course describes the actions needed to verify the correct operation of an ESD system:
- Record review and confirmatory tests
- Operating logic

MULTI-CABLE TRANSIT SYSTEMS

Learn how to identify the different types of MCT systems and how to apply them; understand the surveyor’s role and responsibilities during installation, repair, and maintenance; and recognize potential issues with MCT systems.

MULTI-CABLE TRANSIT SYSTEMS: SYSTEM TYPES
This course covers a summary of commonly applied MCT systems available on the market and may not include all available products with varied ratings:
- Block transit systems
- Expandable and compound transit systems
- Poured transit systems
- Rubber plug transit systems
- Dry hardening putty transit systems

MULTI-CABLE TRANSIT SYSTEMS: INSTALLATIONS, REPAIRS, AND MAINTENANCE
This course covers the surveyor’s role and responsibilities during installation, repair, and maintenance of MCT systems, and explains how to verify the proper installation:
- Surveyor’s role
- Tasks during construction
- Tasks after construction
- Verifying proper installation

MULTI-CABLE TRANSIT SYSTEMS: MILLIONAIRE CHALLENGE
Are you up to the challenge? Test your ability to recognize potential issues with multi-cable transit systems.

CURRICULUM DURATION: 3 HOURS

CURRICULUM DURATION: 1.5 HOURS
With the IMO's recent requirement for cybersecurity to be addressed in a company's safety management system, internal and external auditors need to know what to look for to verify compliance.

**INTRODUCTION TO CYBERSECURITY**
Understand the importance of cybersecurity and know why cybersecurity is addressed in the safety management system.
- Importance of cybersecurity
- Technologies and cyber risks
- Mitigating risk
- Cyber risk management

**CYBERSECURITY BASICS**
Learn the difference between information technology and operational technology, and recognize systems that are vulnerable to cyber threats.
- Information technology
- Operational technology
- System integration
- Critical system onboard networks
- Critical systems
- Individual and integrated systems

**CYBER RISK MANAGEMENT: APPROACH**
Know the approach for cyber risk management and associated risk assessment methodologies.
- IMO framework
- Identifying cyber risks
- Cyber risk management
- Calculating risk

**CYBER RISK MANAGEMENT: THREATS**
Understand the concept of cyber threats for the maritime industry and recognize the various types of cyber threats.
- Cyber threats: Internal and external
- Company threat examples
- Ship threat examples
- Subcontractors, vendors, and third parties
- Types of threats: Unintentional and intentional

**CYBER RISK MANAGEMENT: VULNERABILITIES**
Recognize the concept of cyber vulnerabilities for the maritime industry, both on board and ship-to-shore.
- Cyber vulnerabilities
- Human factor and human error
- Network connections and routers
- Remote access examples
- Vulnerabilities on board

**CYBER RISK MANAGEMENT: CONSEQUENCES**
Explain the concept of consequences within the cyber risk management cycle.
- Consequences overview
- Cyber risk management
- System protection
- Operational consequences
- Physical consequences
- Severity levels and actions

**CYBER RISK MANAGEMENT: THREATS, VULNERABILITIES, AND CONSEQUENCES ACTIVITY**
In this activity, learners will identify potential cyber threats, vulnerabilities, and consequences about a cyber event.
- Scenario
- Threats, vulnerabilities, and consequences
- Auditor actions

**CURRICULUM DURATION: 6 HOURS**
ABS delivers instructor-led courses that lead to measurably higher levels of performance. Many shipowners and managers turn to ABS Academy® to enhance the competencies of their staff.

ABS Academy training events provide good opportunities for networking with others in 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.

- **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 course participation.

ABS also tailors private training programs about topics such as:

- Orientation to New Construction Classification and Statutory Requirements
- LNG-Fueled Vessels: Technical and Operational Overview
- Shaft Alignment for Superintendents
- Train-the-Trainer (US Coast Guard Accepted)

ABS Academy® training centers are located in Athens, Busan, Houston, Shanghai, and Singapore.

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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.

**INTEGRATED MANAGEMENT SYSTEMS INTERNAL AUDITOR**
Course IMS002 (Duration: 3 days)
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 will be used as a model for implementing marine-integrated management systems.

**MANAGEMENT OF CHANGE**
Course MSS001 (Duration: 1 day)
Experienced instructors will take participants through the management of change (MoC) process to confirm that the concepts are clearly defined and understood.

**TRANSITION AND IMPLEMENTATION**
Course SEC002 (Duration: 2 days)
Experienced instructors will explain the transition and implementation requirements for TMSA 3, which is intended to encourage higher standards of ship management. TMSA 3 provides a means by which operators can demonstrate a strong commitment to safety and environmental excellence.

**INCIDENT INVESTIGATION AND ROOT CAUSE ANALYSIS IMPLEMENTATION**
Course RM007 (Duration: 2 days)
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.

**MARITIME RISK ASSESSMENT**
Course RM002 (Duration: 1 day)
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.

**RISK ASSESSMENT IMPLEMENTATION**
Course RM003 (Duration: 2 days)
Experienced instructors will explain the transition and implementation requirements for TMSA 3. The course features workshops to promote discussion and participation.

**MARINE CRISIS MANAGEMENT AND EMERGENCY RESPONSE**
Course HF006 (Duration: 1 day)
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.
BEHAVIOR-BASED SAFETY: AWARENESS AND IMPLEMENTATION  
Course HF003 (Duration: 1 day)  
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 maintain a behavior-based safety system.

ORIENTATION TO NEW CONSTRUCTION CLASSIFICATION AND STATUTORY REQUIREMENTS  
Course REG001 (Duration: 2 days)  
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.

ORIENTATION TO IN-SERVICE CLASSIFICATION AND STATUTORY SURVEYS  
Course REG002 (Duration: 2 days)  
This course, specifically structured for those in a supervisory role within a shipping, operating, or management company, provides participants with insight into the evolution of classification and statutory requirements, with particular emphasis on in-service surveys.

HAZARDOUS AREAS CLASSIFICATION  
Course DES028 (Duration: 1 day)  
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.

HULL OUTFITTING  
Course NC003 (Duration: 1 day)  
This course provides an in-depth discussion about the hull outfitting installation and testing processes associated with the fabrication of steel ships, and ABS requirements for installing the hull outfitting items.

MACHINERY OUTFITTING  
Course NC004 (Duration: 2 days)  
This course covers the machinery installation and testing process associated with the fabrication of steel ships, as well as ABS requirements for installation.

DRYDOCKING AND REPAIRS  
Course OPS015 (Duration: 1 day)  
Experienced instructors will take participants through best practices for drydocking preparation and repairs to confirm that the concepts are clearly defined and understood.

SHAFT ALIGNMENT FOR SUPERINTENDENTS  
Course OPS012 (Duration: 2 days)  
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.

HULL INSPECTIONS FOR SUPERINTENDENTS  
Course M1N006 (Duration: 1 day)  
Participants will gain 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 ABS HIMP requirements.

HULL INSPECTION AND MAINTENANCE PROGRAM: QUALIFIED INSPECTOR  
Course M1N005 (Duration: 2 days)  
Participants will learn how structural inspections are conducted to meet the requirements of HIMP using the ABS Nautical Systems Hull Inspection software.

WELDING INSPECTIONS FOR SUPERINTENDENTS  
Course M1N010 (Duration: 2 days)  
This course is intended to provide participants with awareness to enable them to conduct basic welding inspections and understand the basics of nondestructive examination.

WELDING, METALLURGY, INSPECTIONS, AND NONDESTRUCTIVE EXAMINATION  
Course M1N011 (Duration: 5 days)  
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.

ELECTRICAL AND AUTOMATION SYSTEMS  
Course NC005 (Duration: 2 days)  
This course provides an in-depth discussion about installing and testing electrical and automation systems that are associated with the fabrication of steel ships.

ELECTRICAL EQUIPMENT FOR HAZARDOUS AREAS AND HIGH-VOLTAGE PLANTS  
Course NC013 (Duration: 1 day)  
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.

IN-SERVICE CLASSIFICATION AND STATUTORY SURVEYS FOR MODUs  
Course REG005 (Duration: 3 days)  
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.

FIRE AND LIFESAVING ASPECTS OF FLOATING OFFSHORE INSTALLATIONS  
Course DES051 (Duration: 2 days)  
Participants will learn about the classification and statutory requirements associated with fire and lifesaving safety that apply to different categories of floating offshore installations.

FPSO/FSO CLASSIFICATION REQUIREMENTS  
Course REG006 (Duration: 2 days)  
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.

FPSOs/FSOs: STRUCTURAL ASSESSMENT  
Course DES031 (Duration: 2 days)  
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.
FLOATING LNG FACILITY
CLASSIFICATION REQUIREMENTS
Course REG007 (Duration: 1 day)
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.

LNG-FUELED VESSELS: TECHNICAL AND OPERATIONAL OVERVIEW
Course OPS010 (Duration: 1 day)
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.

INVENTORY OF HAZARDOUS MATERIALS (IHM) ONBOARD
Course ENV006 (Duration: 1 day)
This course introduces the fundamentals of the Inventory of Hazardous Materials (IHM) regulations, including those from the Hong Kong Convention and European Union (EU).

BALLAST WATER MANAGEMENT
Course ENV008 (Duration: 2 days)
Participants will grasp the regulatory requirements and take steps to plan for and oversee the necessary retrofitting of ballast water treatment systems.

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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 Academy®.