## **COURSE OBJECTIVE**

The main objective of this training course is to familiarize the participant with the principles of thrust and bollard pull generation mechanisms, or the characteristics of different tug types, . Finally illustrating how the vessel towing force and bollard pull are measured and the requirement necessary for such tests

### PARTICIPANTS

Ship Builders, Marine Surveyors, Ship Operators, Marine Consultants, Marine Superintendent, Marine Construction Engineers, Engineer Superintendent, Chief Engineers and Masters, Ship Engineers

#### PREREQUISITE

#### None

#### **LEARNING OUTCOMES**

- Assess the upper limit for a Bollard pull force
- Calculate the actual bollard force and the associated figure of merits or effectiveness
- Preparation and conducting a bollard pull test

#### **COURSE CONTENTS**

- Definitions and Symbols
- Ship types
- Ships which can provide "pull" or ships which can pull other ships (Conventional Tugs, Stern drive Tugs, Tractor Tugs, Work boats, AHTS)
- Thrust generation principle (Axial Momentum theory, Axial Momentum theory with swirl, Propeller efficiency, Propeller Geometry, Blade element theory, Combined momentum blade element theory)
- Thrust producing devices (Human powered devices, Nature powered devices, Machine driven propulsors)

- Static thrust (Bollard Pull) Ideal static thrust, Figure of Merit.
- Factors affecting Bollard Pull (Hull lines Configurations, Propeller immersion, Propeller Diameter, Nozzles or ducts arrangements, Propeller blade area, Propeller pitch, propulsion engine).
- Bollard Pull Estimating Methods (Simulation Methods, Simulation Methods, Bollard Pull trial measurements)
- Bollard pull test (Trial Site and Vessel Requirements, Environmental Conditions (Wind Speed, Current), Trial Procedures Preparations

#### **COURSE DURATION**

5 days.

# **Deepwater Riser Engineering – MM002**

## **COURSE OBJECTIVE**

The course provides an overview of marine risers focusing on deepwater application from material selection to offshore installation.

#### PARTICIPANTS

The participants are newly qualified riser engineers (designers and analysts), experienced riser project engineers who want to expand their knowledge, Subproject managers (of subsea contractors including risers) and subsea supervisors / manager

### PREREQUISITE

Background knowledge in pipeline or riser engineers and industry professionals who interface with riser engineering.

pipeline or riser engineers with 1-5 years of experience and industry professionals who interface with riser engineering.

- To provide a basic understanding of the key elements of riser engineering and the riser design process
- Be aware of key decision drivers associated with riser concept selection
- Understand the design process associated with each riser type
- Have a basic understanding of the theory of hydrodynamic and metocean loads that drive riser design
- Understand the technology limits of different riser concepts, whether water depth, vessel, temperature, pressure, fluid or other limits.
- Interface with riser designers with an understanding of their role in subsea design

#### **COURSE CONTENTS**

- Overview
- Fundamentals of riser engineering
- Design codes and regulations
- Top tensioned risers
- Hybrid riser systems
- Steel catenary risers
- Flexible risers
- Drilling risers
  - Riser design methods overview
  - Riser system analytical tools
  - Functional requirements and design drivers
  - Design basis development
  - TTR analysis and design methods

- Hybrid riser analysis and design methods
- TTR component design
- Flexible riser analysis and design methods
- Umbilicals
  - SCR analysis and design methods
  - SCR component design
  - Materials selection
  - Fabrication, welding, and NDE
  - Installation design
  - Group design exercise interactive
  - Deepwater riser projects and lessons learned
  - Project histories (from invited operator representatives)

## **COURSE OBJECTIVE**

The main objective of this training course is to learn the features and technical procedures for both the dry docking and underwater repairs in the light of IACS members' requirements.

## PARTICIPANTS

The participants are dry dock engineers, Underwater Inspectors, Marine Superintendent, Engineer Superintendent, Marine Surveyors, Marine Consultants, Chief Engineers and Masters.

## PREREQUISITE

Background knowledge in ship construction.

**LEARNING OUTCOMES** 

- Dry Docking Contract
- Docking/Undocking Procedures
- Dry Docking Planning
- Dry Docking Operation

- Dry Docking Routine Work
- Safety Aspects in Dry Docking
- Underwater Inspection Survey Program

## **COURSE CONTENTS**

- Introduction to Dry Docking
- Dry Docking Preparation & Readiness
- Docking Evolution
- Undocking Evolution
- Dry Docking Class Requirements (Hull)

- Dry Docking Class Requirements (Machinery)
- Safety Aspects in Dry Docking
- Underwater Survey Inspection Procedure
- Class Requirements for Underwater Inspection
- Wrap up (Feedback/ Inquiries/Exam)

## **COURSE DURATION**

3 days

# **Efficient Operation of Marine Diesel Engines- MM004**

## **COURSE OBJECTIVE**

The main objective of this training course is to learn the features and technical procedures for both the diesel engine operation and major troubleshooting. The objective of the course is to know how operate the engine efficiently.

## PARTICIPANTS

The participants are machinery maintenance engineers, Diesel Engine operators, Marine Superintendent, Engineer Superintendent, Marine Surveyors, Marine Consultants, Chief Engineers and Masters.

## PREREQUISITE

Background knowledge of marine diesel engines and systems.

#### **LEARNING OUTCOMES**

- Recognize the engine troubleshooting
- Plain and set the engine overhauls program
- Engine maintenance and repair Contract
- Monitor the engine condition and carrying on the energy balance sheet
- Engine performance calculation Procedures
- Periodical maintenance Routine Work
- Safety Aspects in engine operation and maintenance
- Install the auxiliary equipment and service systems

- Introduction to Diesel engine
- Engine Performance Calculations
- Diesel engine components and equipments
- Diesel engine supporting systems
- Fuel oil system and lubricating oil system

- Fuel injection systems
- Starting air and cooling systems
- Scavenging and air charging systems
- Engine troubleshooting
- Engine maintenance and overhauls program

# Hull & Structural Survey – MM005

## **COURSE OBJECTIVE**

The main objective of this training course is to learn the features and technical procedures for both hull and structural survey in the light of IACS members' requirements.

## PARTICIPANTS

The participants are dry dock engineers, Marine Superintendent, Engineer Superintendent, Marine Surveyors, Marine Consultants, Chief Engineers and Masters.

### PREREQUISITE

Background knowledge of ship construction.

#### **LEARNING OUTCOMES**

- Ship types and features
- Shipyard technology and contracting.
- Forces acting on ship in still water, during crossing sea water, and maneuvering operations.
- Fore, Aft ends & Midship Construction

- Typical constructions for Bulk Carrier, Container, Ro-Ro, Tankers, etc.
- Survey Planning and Execution
- Safety Aspects in Conducting Surveys
- Practical examples for selective Structural Failures and the corresponding repairs.

- Ship Types and Features
- Shipbuilding Technology
- Forces on Ships
- Ship Construction (Part-A)
- Ship Construction (Part-B)

- Typical Constructions for some Ships
- Guidelines for Surveys Assessment (Part-A)
- Guidelines for Surveys Assessment (Part-B)
- Structural Failure & Repairs
- Wrap up (Feedback/ Inquiries/Exam)
- **COURSE DURATION**

## Introduction to Quality Systems – MM006

### **COURSE OBJECTIVE**

The main objective of this training course is to enable participants to develop, implement, and prepare a Quality Management System (QMS) for certification using process mapping and computer technology to improve the effectiveness and reduce the ongoing cost of maintaining the QMS.

#### **PARTICIPANTS**

It is intended to apply to a broad range of potential users, including auditors, organizations implementing quality and/or environmental management systems, organizations needing to conduct audits of quality and/or environmental management systems for contractual reasons, and organizations involved in auditor certification or training, in certification/registration of management systems, in accreditation or in standardization in the area of conformity assessment.

#### PREREQUISITE

None

## LEARNING OUTCOMES

Students will learn:

- How to create effective, user friendly process documentation that conforms to the requirements of QMS.
- How to develop a structured, modularized documentation system focused on business functions
- How to maximize the effectiveness of process documentation through the use of integrated Flowchart Documentation techniques
- How to construct and implement a Quality Management System that satisfies all of the requirements of the Quality System.

#### **COURSE CONTENTS**

#### Introduction

- Scope of application
- Field of application
- References
- Definitions
  - Concept of quality
  - Need for quality
  - Quality management (QM)
  - Quality Assurance (QA)
  - o Total Quality

- Management style
- Quality system requirements
  - Management responsibilities
  - Quality system
  - Contract review
  - **o** Document control
  - Purchasing
  - Purchaser supplied product
  - Product identification and

**COURSE DURATION** 

- traceability
- Process control

- Inspection and testing
- Inspection, measuring and test equipment
- Inspection and test status
- Control of nonconforming product
- Corrective action
- Handling, storage, packaging and delivery
- Quality records
- Internal quality audits
- Training
- **o** Statistical techniques

• Basic : One day

Advanced Two days

## **International Ship & Port Facility Security**

Code-Basic Course – MM007

#### **COURSE OBJECTIVE**

This course provides a regulatory overview of maritime security requirements applicable to ship, company, and port facility security officers.

#### **PARTICIPANTS**

Ship owners and managers; liner and passenger company personnel; crew interested in extending their career in a new direction, Officers seeking a deeper understanding of security issues at a ship or company level, Professionals from associated or supporting sectors including P & I clubs, law firms, class societies, law enforcement agencies, security firms and government or regulatory bodies.

#### PREREQUISITE

Background knowledge in Shipping world & trade is recommended, but not Mandatory for this course.

LEARNING OUT	TCOMES
<ul> <li>Conduct an initial comprehensive security survey, and advise levels of threat.</li> <li>Ensure development and maintenance of the Security Plan.</li> <li>Undertake regular security inspections and arrange for internal audits.</li> <li>Enhance security awareness and vigilance of personnel.</li> </ul>	<ul> <li>Ensure adequate training has been provided to personnel.</li> <li>Ensure security equipment is properly operated, tested, and calibrated.</li> <li>Ensure company response measures meet the security level.</li> <li>Ensure that administration requirements are met for approval of assessments, plans, and amendments.</li> </ul>
Course Con	ITENTS
Overview of ISPS Code, Parts A and B	Knowledge of current security threats and patterns

- Security assessment
- Security plans
- Duties and responsibilities of SSO/CSO/PFSO & Security administration
- Techniques for security training
- Handling sensitive security-related information and communications

- Knowledge of current security threats and patterns
- **Recognition of security threatening**
- security Techniques & Security equipment and systems
- Methods of physical searches and non-intrusive inspections
- Security drills and exercises
- Security program implementation

## International Ship & Port Facility Security Code-

## **Advanced Course – MM008**

#### **COURSE OBJECTIVE**

This course provides a regulatory overview of maritime security requirements applicable to ship, company, and port facility security officers, Its main objective is to present state of- the-art information, techniques, and tools for the ongoing development and implementation of effective and compliant maritime security programs.

#### **PARTICIPANTS**

Ship owners and managers; liner and passenger company personnel; crew interested in extending their career in a new direction, Officers seeking a deeper understanding of security issues at a ship or company level, Professionals from associated or supporting sectors including P & I clubs, law firms, class societies, law enforcement agencies, security firms and government or regulatory bodies.

#### PREREQUISITE

Background knowledge in Shipping world & trade is recommended, but not Mandatory for this course.

<ul> <li>Conduct an initial comprehensive security survey, and advise levels of threat.</li> <li>Ensure development and maintenance of the Security Plan.</li> <li>Undertake regular security inspections and arrange for internal audits.</li> <li>Enhance security awareness and vigilance of personnel.</li> </ul>	<ul> <li>Ensure adequate training has been provided to personnel.</li> <li>Ensure security equipment is properly operated, tested, and calibrated.</li> <li>Ensure company response measures meet the security level.</li> <li>Ensure that administration requirements are met for approval of assessments, plans, and amendments.</li> </ul>			
COURSE CONTENTS				
<ul> <li>Introduction and Regulatory Requirements (IMO &amp; SOLAS)</li> <li>Risk Management Basis for Maritime Security</li> <li>Security Assessments</li> <li>Security Plans (Port, Port Facility, Company and Ship Plans)</li> <li>Security Training</li> <li>Security Training Topics (per Sections 13 and 18 of the ISPS Code, Part B)</li> <li>Handling Sensitive Security-Related Information and Security-Related Communications</li> </ul>	<ul> <li>Knowledge of Current Security Threats and Patterns</li> <li>Recognition and Detection of Weapons, Dangerous Substances and Devices</li> <li>Recognition of security threatening</li> <li>Techniques Used to Circumvent Security Measures</li> <li>Security Equipment and Systems and Their Operational Limitations</li> <li>Methods of Physical Searches and Nonintrusive Inspections</li> <li>Security Drills and Exercises, Including Assessments</li> <li>Security Program Implementation and Internal Audit Programs</li> </ul>			
COURSE DURATION				

## **COURSE OBJECTIVE**

The main objective of this training course is to familiarize the participant with the principles of shipyard layouts, different department and product flow within the different sections in such a way to be effective and economic. Safety aspects within shipyards are also addressed.

## PARTICIPANTS

The participants are Ship Builders, Marine Surveyors, Ship Operators, Marine Consultants, Marine Superintendent, Marine Construction Engineers, Engineer Superintendent, Chief Engineers and Masters and Ship Engineers.

## Prerequisite

Background knowledge in Shipping/Shipyard in Business Development or Marketing or Sales will be an added advantage.

At least some technical knowledge about the products for Shipping/Shipyard

### **LEARNING OUTCOMES**

- Understand the different shipyard activities that contribute to final end product.
- Know the different standards for achieving health and safety
- Figure out methods of raising up the competitiveness level within an existing shipyard
- Properly manage efficient work flow within a production/repair line

#### **COURSE CONTENTS**

- Introduction to shipyards.
- Shipyard layout, Stockyard.
- Metal preparation.
- Assembly and subassembly, Erection.
- Installation and outfitting.

- Operational systems, Quality assurance.
- Shipyard Competitiveness upgrade.
- Management and business development.
- Case study.

#### **COURSE DURATION**

3 days

## **Maintenance and Repair of Diesel Fuel**

**Injection Systems – MM010** 

## **COURSE OBJECTIVE**

The main objective of this training course is to learn the steps and technical procedures to monitor and control the fuel injection components. The maintenance procedures and the required test to achieve the best performance is an objective.

## PARTICIPANTS

The participants are machinery maintenance engineers, Diesel Engine operators, Marine Superintendent, Engineer Superintendent, Marine Surveyors, Marine Consultants, Chief Engineers and Masters, Marine and mechanical engineers.

### PREREQUISITE

Background knowledge in Basic marine engine design and components.

#### **LEARNING OUTCOMES**

- Recognize the components of fuel injection systems
- Recognize the engine fuel system troubleshooting
- Plain and set the engine injection system overhauls program
- Engine maintenance and repair Contract
- Monitor the fuel injection system condition

- Effect of fuel injection system on Engine performance
- Test and measurements required for fuel injection Routine Work
- Safety Aspects in fuel injection and engine operation
- Install and repair of fuel pump and injector

- Introduction to Diesel fuel injection system
- Injection system and environmental impact
- Fuel injector and nozzles
- Fuel metering and control systems
- Fuel pump and plunger

- Test of injector and plunger
- Maintenance, Replacement and change of fuel injection components
- Fuel preparation and treatment
- Troubleshooting of fuel injection system
- Monitoring and inspection of fuel injection system
- **COURSE DURATION**

# Maintenance and repair of marine units – MM011

## **COURSE OBJECTIVE**

The main objective of this training course is to learn the steps and technical procedures to maintain and repair the ships. The training course is covering the docking procedures for most of the marine units.

## PARTICIPANTS

The participants are ship builders, ship engineers, shipyard operators, Marine Superintendent, Engineer Superintendent, Marine Surveyors, Marine Consultants, Marine construction engineers, Chief Engineers and Masters

## PREREQUISITE

Background knowledge in General experience in Basic marine engine design and components.

#### **LEARNING OUTCOMES**

- Recognize the defect and damage of ship hull
- Recognize the different docking methods
- Plain and set the ship hull maintenance and repair processes
- Plain and set the ship hull maintenance and repair Contract

- Test and measurements required to check the ship hull
- Recognize the ship yard facilities.
- Calculate the material, cost and arrange the work steps

### **COURSE CONTENTS**

- Introduction to ship building
- Shipyard arrangement and facilities
- Types of ship damage and defect
- Ship hull repair and maintenance
- Mechanical repair and maintenance

- Repairing tools and facilities
- Machining, cutting and welding procedures
- Hull surface preparation and painting processes
- Hull inspection tools and measurements
- Docking and lunching calculations

## **COURSE DURATION**

3 days

# **Maintenance of Offshore Systems – MM012**

## **COURSE OBJECTIVE**

The main objective of this training course is to equip the participant with the necessary skills required for planning, performing and supervising maintenance programs for offshore structures and subsea systems.

## PARTICIPANTS

Offshore Design Engineers, Offshore construction and Maintenance engineers, Technical managers.

#### PREREQUISITE

Background knowledge in offshore systems.

## **LEARNING OUTCOMES**

- Upon completing this course the participant should be able to:
- Assess offshore structure status regards aging and deterioration
- Device different maintenance strategies
- Plan maintenance schemes required for different parts of offshore structure
- Select the proper tools and instrument necessary for examining and surveying subsea systems and pipelines.

#### **COURSE CONTENTS**

- Deterioration of offshore structures.
- Fabrication and installation stages, in-service stage.
- Maintenance strategies and types, underwater work systems.
- Tools, instruments, divers, underwater vehicles.
- Maintenance of jacket structures.
- Maintenance of the topside structures,
- Topside facilities and equipment,
- Maintenance of subsea systems and pipelines.

# **Marine Vehicle Stability Assessment:**

## **Basic Concepts – MM013**

#### **COURSE OBJECTIVE**

The main objective of this training course is to familiarize the participant with the different hydrostatic particulars of floating bodies. Both intact and damage stability parameters as pertaining to marine vehicles are also addressed. Finally, the criteria and governing regulations used to assess the vessel's stability in both intact and damage modes are illustrated through typical example cases.

#### **PARTICIPANTS**

Ship Builders, Marine Surveyors, Chief Engineers and Masters, Ship Operators , Ship Engineers - Engineer Superintendent, Marine Superintendent, Marine **Construction Engineers** 

### PREREQUISITE

#### **B.Sc. of Marine Engineering.**

LEARNING OUTCOMES				
understand the basic principle of floatation, trim and stability		<ul> <li>Interprete stability diagram and</li> </ul>		
<ul> <li>understand the conditions for complying with stability requireme</li> </ul>	ts	deduce vehicle stability		
COURSE CONTENTS				
Introduction and basic definition, Forces and moments, Centroids	Dynamical s	stability, Effect of beam and freeboard on stability, Angle of		
and the centre of gravity, Laws of floatation , Effect of density on	loll, True m	ean draft, The inclining experiment, Effect of trim on tank		
draft and displacement	soundings.			
Transverse statical stability, Effect of free surface of liquids on	Drydocking	and grounding, Second moments of areas, Liquid pressure		
stability, TPC and displacement curves, Form coefficients, Numerical	and thrust.	Centres of pressure, Ship squat, Heel due to turning.		
Integration Rules for areas and centroids. Forces on Ships	List due to	bilging side compartments, The Deadweight Scale, Effect of		
Final KG , Calculating KB, BM and metacentric diagrams, List,	change of d	ensity on draft and trim, List with zero metacentric height		
Moments of statical stability, Trim, Stability and hydrostatic curves	The Trim a	nd Stability book , Bending of beams, Bending of ships,		
Increase in draft due to list, Water pressure, Combined list and trim,	Strength cu	urves for ships, Bending and shear stresses, Simplified		
Calculating the effect of free surface of liquids (FSE), Bilging and	stability inf	ormation		
permeability	Intact and	damage stability criteria, IMO Resolution.		

#### • Intact and damage stability criteria, IMO Resolution.

## **Marine Vehicle Stability Assessment:**

## **Computer Simulations – MM014**

## **COURSE OBJECTIVE**

The main objective of this training course is to familiarize the participant with the usage of different computer packages to carry out ship stability calculations. The course also aims at acquiring the participant the skills required to produce professional trim and stability booklet for typical vessels under different loading conditions

## PARTICIPANTS

Ship Builders, Marine Surveyors, Ship Operators, Marine Consultants, Marine Superintendent, Marine Construction Engineers, Engineer Superintendent - Chief Engineers and Masters, Ship Engineers

## PREREQUISITE

**B.Sc. of Marine Engineering.** 

### **LEARNING OUTCOMES**

- Model a vessel outside geometry through interactive and/or interactive mode
- Model vessel's interior spaces, tanks, etc through interactive and/or interactive mode
- Perform complete hydrostatic, cross curves of stabilty
- Prepare different loading condition
- Assess stability in both intact and damage condition

## **COURSE CONTENTS**

- Introduction to using computers in stability calculations
- Commercial Software Packages in Naval Architecture
- Hull Model Making Module, Geometrical File, Hull data, Command file, Table of offset
- Auto hydro Module, Interactive and Run files modes
- Hydrostatic Particulars, Cross curves of stability, Maximum Vertical Center of Gravity, Loading Conditions
- Stability Criteria, Stability Report Exercise\* and computer applications Exercises selected from real and actual applications. These include (but not limited to): Float-over (during topside installation), load-out and transportation of the structure parts (decks, jackets, etc.) on the barge, addition of permanent weights on the barge (intact & damage).

#### **COURSE OBJECTIVE**

The main objective of this course is to familiarize the participant with the principles of Maritime Security Regulatory Frameworks, Systems & response Management, it's Considered as an introduction to the real world of shipping and the many aspects that must be factored into a shipping line and ship's security.

#### PARTICIPANTS

Ship owners and managers; liner and passenger company personnel; crew interested in extending their career in a new direction, Officers seeking a deeper understanding of security issues at a ship or company level, Professionals from associated or supporting sectors including P & I clubs, law firms, class societies, law enforcement agencies, security firms and government or regulatory bodies.

#### PREREQUISITE

Background knowledge in Shipping world & trade is recommended, but not Mandatory for this course.

#### **LEARNING OUTCOMES**

- Understand the Importance & magnificence of Security in maritime World.
- Know the different standards for achieving the minimum Security of shipping.
- To be Familiar with security systems & plans.
- To be able to Properly Asses Security Onboard & in port.
- To know how to respond to security threats & to Asses different emergency Situations.

#### **COURSE CONTENTS**

- Maritime Regulatory Frameworks
- Key Legal Concepts
- Security Systems, Plans and Personnel

- Piracy and Terrorism
- Threat Assessment and Risk Mitigation
- Response, Management and Follow Up

## **Maritime Security-Advanced Course – MM016**

#### **COURSE OBJECTIVE**

The main objective of this course is to familiarize the participant with the principles of Maritime Security Regulatory Frameworks, Systems & response Management, it's Considered as an introduction to the real world of shipping and the many aspects that must be factored into a shipping line and ship's security.

#### PARTICIPANTS

Ship owners and managers; liner and passenger company personnel; crew interested in extending their career in a new direction, Officers seeking a deeper understanding of security issues at a ship or company level, Professionals from associated or supporting sectors including P & I clubs, law firms, class societies, law enforcement agencies, security firms and government or regulatory bodies.

#### PREREQUISITE

Background knowledge in Shipping world & trade is recommended, but not Mandatory for this course .

#### **LEARNING OUTCOMES**

- Understand the Importance & magnificence of Security in maritime World.
- Know the different standards for achieving the minimum Security of shipping.
- To be Familiar with security systems & plans.
- To be able to Properly Asses Security Onboard & in port.
- To know how to respond to security threats & to Asses different emergency Situations.

- Maritime Regulatory Frameworks
- Introduction to the main threats to shipping
- Key Legal Concepts
- Security Systems & Plans
- Security Personnel & responsibilities

- Emergency preparedness, drills and exercises
- Piracy and Terrorism
- Threat Assessment and Risk Mitigation
- Response, Management and Follow Up
- Security Report writing

## ILO Maritime Labor Convention 2006 (MLC)-Basic Course – MM017

#### **COURSE OBJECTIVE**

To provide useful insight to all those involved in the implementation of the Maritime Labor Convention for all day to day operational aspects with respect to the subject.

#### PARTICIPANTS

HR Managers, Ship Owners, Ship Masters, Manning Agents, Ship's Masters, Ship's Officers, Superintendents and Office Support Staff, Flag and Port State Officials, Welfare Organization Officials, Maritime Labor Organization Officials & all Those concerned with the rights and responsibilities of seafarers.

#### PREREQUISITE

Background knowledge in Shipping world & trade is recommended, but not Mandatory for this course.

#### **LEARNING OUTCOMES**

- Understand the context in which the frameworks of regulations, responsibilities and activities, set by the MLC, have been established.
- Know the content of the MLC.
- Be able to describe the role and responsibilities of shipowners, ship managers, ships' masters, ships' officers, flag and port state officials, and welfare organizations.
- Determine the steps you must take to ensure compliance.
- Understand how to play your part in achieving compliance.
- Be able to describe and put into practice the various elements of MLC management aboard and ashore.
- Have demonstrated your knowledge and understanding.

#### **COURSE CONTENTS**

- Discussion on the content of the convention and its implementation onboard
- Description of operational requirements
- Reviewing DMLC (Part I and Part II) in relation to the MLC, 2006 requirements

- practical guidance on how to undertake an inspection relating to maritime labor issues
- Port State Control procedures
- preparing for an MLC, 2006 inspection

• introduction to dealing with seafarers complaints

# ILO Maritime Labor Convention 2006 (MLC)-Advanced Course

## - MM018

#### **COURSE OBJECTIVE**

To provide useful insight to all those involved in the implementation of the Maritime Labor Convention for all day to day operational aspects with respect to the subject & To provide in Depth Training for those responsible for implementing MLC.

#### PARTICIPANTS

HR Managers, Ship Owners, Ship Masters, Manning Agents, Ship's Masters, Ship's Officers, Superintendents and Office Support Staff, Flag and Port State Officials, Welfare Organization Officials, Maritime Labor Organization Officials & all Those concerned with the rights and responsibilities of seafarers.

#### PREREQUISITE

Background knowledge in Shipping world & trade is recommended, but not Mandatory for this course.

#### **LEARNING OUTCOMES**

- Understand the context in which the frameworks of regulations, responsibilities and activities, set by the MLC, have been established.
- Know the content of the MLC.
- Be able to describe the role and responsibilities of shipowners, ship managers, ships' masters, ships' officers, flag and port state officials, and welfare organizations.
- Determine the steps you must take to ensure compliance.
- Understand how to play your part in achieving compliance.
- Be able to describe and put into practice the various elements of MLC management aboard and ashore.
- Have demonstrated your knowledge and understanding.

#### **COURSE CONTENTS**

- Background to MLC requirements
- Application of the ILO MLC
- Detailed description of operational requirements
- Reviewing DMLC (Part I and Part II) in relation to the MLC, 2006 requirements
- Flag State Responsibilities

- Links with existing regulations
- Implementation issues
- Best Management Practices
- Dealing with seafarers complaints
- Port State Control procedures
- preparing for an MLC, 2006 inspection

# **ASSET INTEGRITY MANAGEMENT RISK**

## **BASED INSPECTION – MM019**

#### **COURSE OBJECTIVE**

Risk Based Integrity Process is The evaluation of risk is fundamental to the process of assuring asset integrity. Even within prescriptive regulatory regimes it is unusual to find that no leeway exists enabling professional engineers to asses, either qualitatively or quantitatively the most appropriate means and timescale for intervention and control on the basis of risk.

#### **PARTICIPANTS**

The participants are Maintenance superintendents/supervisors, Maintenance, Reliability and Plant Engineers and Senior Inspectors who are managing or planning to implement an RBI program in the hydrocarbon processing industry, chemical, fertilizer and pulp and paper industry and HSE personnel

#### PREREQUISITE

LEARNING OUTCOMES

#### None

- Understand the RBI process
- Understand how to establish a RBI program within your business
- Understand some of the key technical issues involved in RBI studies
- Understand the benefits of RBI

## **COURSE CONTENTS**

- LEVEL I Level II Assessment of Likelihood of Failure. • ٠ **Risk assessment And Integrity Management. Inspection Plan Development 1 Introduction General** Integrity Management Process & Methods. **Degradation Mechanisms and Inspection Methods** Purposes • **Management Systems** Scope of Inspection (Sample Population Size, Location and • Scope **Compliance Requirements Extent of Inspection)** Definitions **Risk assessment analysis Frequency of Inspection** 2 Fundamentals of RBI **Inspection Management Inspection Execution Definition of RBI** and Risk Based Inspection (RBI) **Analysis of Inspection Results Risk Assessment and Inspection. Corrosion Management RBI Program Updating** • The RBI Process Information Management . 3 In Service Maintenance and Updating of RBI Plan **Health Safety Environment RBI Benefits.** Annual Confirmation Survey of RBI Program **RBI Limitations.** . **Review of Plan Updates Risk-Based Prioritization.** . Case Study The Risk Assessment Methodology. •
  - COURSE DURATION

2 days

- •

# Subsea Pipeline Engineering – MM020

## **COURSE OBJECTIVE**

The course will provide a complete and up-to-date overview of the area of subsea pipeline engineering, taking delegates through the pre-design phase, design, construction, installation, operation and maintenance. It will give a complete picture of the work of design engineers and pipeline construction companies, using actual case studies from around the world to highlight the topics discussed.

## PARTICIPANTS

The participants are engineers from oil and gas companies, construction companies, pipe and service suppliers, and regulatory authorities, who are newly qualified, have recently moved into pipeline engineering, or hold broad responsibilities that include pipelines.

#### PREREQUISITE

None

## **LEARNING OUTCOMES**

- Identify and critically review key features, advantages and limitations of rigid pipe, flexible pipe and bundles. Apply knowledge of their fabrication and installation to select appropriate materials, installation methods and subsea protection.
- Plan for successful pipeline installation, pre-commissioning and de-commissioning, specifying all appropriate activities and identifying relevant risks or design considerations.
- Perform and evaluate all stability and structural calculations that may be required during installation, repair, abandonment or decommissioning works, based on appropriate design codes.

## **COURSE CONTENTS**

- System configuration & Route selection.
- Shore approaches
- Materials selection
- Hydraulics and flow assurance
- Design for strength
- Case study: Internal corrosion
- Environmental design criteria.

- Mishaps, risk, and repair.
- Case study: Design exercise.
- Construction
- Spans.
- Welding
- Decommissioning.

# **Subsea Production Systems Engineering – MM021**

## **COURSE OBJECTIVE**

This course provides an overview of the key processes, technologies and equipment that comprise contemporary subsea production developments. It also provides experienced-based details of actual projects, from the drilling of the well to bringing the system into production.

#### PARTICIPANTS

The participants are project managers who want to know more about the technology they are directing, Project engineers who specialize in a specific area, but need to know about how other technologies interface with their own, engineers from other disciplines who are moving into the subsea area, newly qualified engineers who just coming into the offshore industry.

### PREREQUISITE

#### None

### **LEARNING OUTCOMES**

- Gain a complete overview of subsea production equipment and systems.
- Understand how subsea systems are designed, installed and operated.
- Discover the technology and processes involved in subsea engineering.
- Examine the production equipment that is placed on the seabed.
- Analyze the connections between the well and the above sea surface production hosts.
- Explore subsea engineering solutions used with fixed platforms or floating production facilities.
- Consider current developments and issues shaping subsea production around the world.

- Concept selection interfaces: the keys to an integrated subsea system
- Various perspectives on the "system"
- The components of a subsea production system
- Production system compatibility
- Management of interfaces
- Field development options
- Economic and risk variations
- Economic decisions: different results from different operators
- Establishing field architecture
- Drilling, completion, and production

- Reservoir, bathymetry, and geohazard considerations
- Flow assurance considerations
- Host facility, mooring, and metocean drivers
- Flowlines and risers
- Equipment selection trees and jumper systems
- Equipment selection controls and umbilicals
- High pressure and temperature (HP/HT) designs
- New technology
- Subsea engineering practice case studies
- **COURSE DURATION**

# **Structural Design of Offshore Platforms – MM022**

## **COURSE OBJECTIVE**

The main objective of this training course is to equip the participant with the necessary skills required for performing detailed design calculations for offshore jacket platforms.

## PARTICIPANTS

Offshore design engineers, Offshore Construction and Maintenance engineers, Technical Managers.

#### PREREQUISITE

B.Sc. of Marine/ Mechanical Engineering

## **LEARNING OUTCOMES**

- Know different types of offshire strucrure regarding function, site, limitations, ..etc .
- Estimate design loads and forces actng on offshore structure.
- Use design codes pertaining to offshore structures.
- Perform fatigue analysis for elements of offshore structure.

### **COURSE CONTENTS**

- Types of Offshore Structures.
- General design procedure.
- design loads and forces.
- Jacket structural design.
- Tubular joint design.
- Fatigue analysis, Design codes, Topside structures, layout and design considerations, Pile foundations.

**COURSE DURATION** 

5 days.

## **ISO 9001 Management System Refresh for Lead**

Auditor – MM023

#### **COURSE OBJECTIVE**

The main objective of this training course is to learn the management of audit programs, the conduct of internal or external audits of quality and/or environment management systems, as well as, on the competence and evaluation of auditors..

#### **PARTICIPANTS**

It is intended to apply to a broad range of potential users, including auditors, organizations implementing quality and/or environmental management systems, organizations needing to conduct audits of quality and/or environmental management systems for contractual reasons, and organizations involved in auditor certification or training, in certification/registration of management systems, in accreditation or in standardization in the area of conformity assessment.

#### PREREQUISITE

ISO 9001 Lead Auditor

#### **LEARNING OUTCOMES**

Provides only guidance, however, users can apply this to develop their own audit related requirements.

In addition, any other individual or organization with an interested in monitoring conformance to requirements, such as product specifications or laws and regulations, may find the guidance in this International Standard useful.

• Scope	Audit activities	
Normative references	o <b>General</b>	
Terms and definitions	<ul> <li>Initiating the audit</li> </ul>	
o Audit	<ul> <li>Determining the feasibility of the audit</li> </ul>	
<ul> <li>Audit criteria, evidence, findings, conclusion, client, team, plan,</li> </ul>	<ul> <li>Conducting document review and audit follow-up</li> </ul>	
scope and programme	<ul> <li>Preparing for the on-site audit activities</li> </ul>	
o Auditee	$\circ~$ Preparing, approving and distributing the audit report	
o Auditor	<ul> <li>Completing the audit</li> </ul>	
<ul> <li>Technical expert</li> </ul>	Competence and evaluation of auditors	
o competence	$\circ~$ Education, work experience, auditor training and audit	
Principles of auditing	experience	
Managing an audit programme	<ul> <li>Maintenance and improvement of competence</li> </ul>	
• Audit programme objectives, extent, responsibilities, resources,	<ul> <li>Auditor evaluation</li> </ul>	
procedures, implementation, records, monitoring and reviewing		
COURSE DURATION		
3 davs.		

# ISO 9001 Management System Lead Auditor – MM024

### **COURSE OBJECTIVE**

The main objective of this training course is to learn the management of audit programs, the conduct of internal or external audits of quality and/or environment management systems, as well as, on the competence and evaluation of auditors.

#### PARTICIPANTS

It is intended to apply to a broad range of potential users, including auditors, organizations implementing quality and/or environmental management systems, organizations needing to conduct audits of quality and/or environmental management systems for contractual reasons, and organizations involved in auditor certification or training, in certification/registration of management systems, in accreditation or in standardization in the area of conformity assessment.

#### PREREQUISITE

#### None

#### **LEARNING OUTCOMES**

- Provides only guidance, however, users can apply this to develop their own audit related requirements.
- In addition, any other individual or organization with an interested in monitoring conformance to requirements, such as product specifications or laws and regulations, may find the guidance in this International Standard useful.

#### **COURSE CONTENTS**

- Scope
- Normative references
- Terms and definitions
  - Audit
  - Audit criteria
  - Audit evidence
  - Audit findings
  - Audit conclusion
  - Audit client
  - Auditee
  - o Auditor
  - Audit team
  - o Technical expert
  - Audit programme

- Audit plan
- Audit scope
- o competence
- Principles of auditing
- Managing an audit programme
  - General
  - Audit programme objectives and extent
  - Audit programme responsibilities,
  - resources and procedures
  - Audit programme implementation
  - Audit programme records
  - Audit programme monitoring and reviewing
- Audit activities
  - o General
  - o Initiating the audit

- Determining the feasibility of the audit
- Conducting document review
- Preparing for the on-site audit activities
- Preparing, approving and distributing the audit report
- Completing the audit
- Conducting audit follow-up
- Competence and evaluation of auditors
  - o General
  - Personal attributes
  - Knowledge and skills
  - Education, work experience, auditor training and audit experience
  - Maintenance and improvement of competence
  - **o** Auditor evaluation