

## **SIRE Chapter 03: Crew Management**

### **MSSV-2001 Coping with Stress**

#### **Course Description**

This course focuses on understanding and managing stress in the maritime environment, where unique challenges like fatigue and isolation can amplify its effects. Topics include types and causes of stress, its negative impact on human performance, and practical coping strategies. Participants will explore stress management techniques and identify endurance risk factors to enhance well-being and resilience. Designed for seafarers, this course promotes a healthier, safer, and more productive work environment at sea.

The Course:

- Addresses SIRE 2.0 Section 3: Crew Management 3.2.8 and 3.4.1

### **MSSV-2002 Managing Fatigue onboard**

#### **Course Description**

This course addresses the critical issue of fatigue in maritime operations, focusing on its causes, effects, and strategies for prevention. Participants will learn how to protect themselves from the onset of fatigue, explore the relationship between ship design and fatigue, and gain practical insights into managing fatigue effectively onboard. By promoting awareness and proactive measures, this course aims to enhance safety, performance, and well-being for all seafarers.

The Course:

- Addresses SIRE 2.0 Section 3: Crew Management 3. 4.1

### **MSSV-2003 Understanding Team Dynamics**

#### **Course Description**

This course delves into the intricacies of team dynamics within maritime organizations, emphasizing the importance of effective teamwork for operational success. Topics include onboard organization, challenges faced by teams, and key concepts of teamwork. Participants will explore the differences between groups and teams, the phenomenon of groupthink, stages of team development, and the art of delegation. The course also focuses on enhancing team effectiveness through real-world case studies addressing teamwork challenges and communication issues, fostering collaboration and efficiency.

The Course:

- Addresses SIRE 2.0 Section 3: Crew Management 3. 3.1 and 3.3.4

### **MSSV-2004 Leadership at Sea**

#### **Course Description**

This course provides a comprehensive exploration of leadership in the maritime environment, emphasizing its critical role in team performance and decision-making. Topics include foundational leadership concepts, strategies, and models, as well as different leadership styles and their practical applications. Participants will examine

patterns of mental habits to enhance self-awareness, learn the principles of inspirational leadership, and develop assertive communication skills for effective teamwork. Special focus is given to leadership in emergency scenarios, equipping mariners to lead confidently under pressure.

The Course:

- Addresses SIRE 2.0 Section 3: Crew Management 3. 3.1 and 3.3.4

### **MSSV-2005 Application of Motivation and Teamwork onboard**

#### **Course Description**

This course explores the practical aspects of fostering motivation and teamwork in the maritime environment. Key topics include leadership and teamwork skills, effective communication, and strategies for motivating teams. Participants will learn about the hierarchy of needs, performance motivation, task and workload management, and the planning process, including their role in it. Additional modules focus on personnel assignment, mentoring, prioritization, managing conflicts, and addressing time and resource constraints. The course also emphasizes cross-cultural leadership, performance appraisals, and creating an inclusive team culture, equipping mariners to enhance team performance and cohesion in diverse settings.

The Course:

- Addresses SIRE 2.0 Section 3: Crew Management 3. 3.1 and 3.3.4

### **MSSV-2006 Personal Wellbeing while onboard**

#### **Course Description**

This course emphasizes the importance of personal well-being and stress management for seafarers. Participants will learn how to cope with workplace harassment and bullying, the dangers of drug and alcohol abuse, and strategies for maintaining mental and physical health while at sea. The course also includes discussions on harassment at sea and how to nurture a positive, supportive environment onboard.

The Course:

- Addresses SIRE 2.0 Section 3: Crew Management 3. 4.1, 3.4.2 and 3.5.1

### **MSSV-2007 Effective Conflict Resolution in Maritime Settings**

#### **Course Description**

This course explores the theories of conflict, stress, and harassment in maritime settings. Participants will learn how to manage personal stress and its effects on others, resolve workplace conflicts, and eliminate shipboard harassment and bullying. The course includes psychological tools for conflict management and provides guidance to stakeholders on creating a respectful and harmonious work environment.

The Course:

- Addresses SIRE 2.0 Section 3: Crew Management 3. 2.8 and 3.5.1

### **MSSV-2008 Promoting Respect Onboard: Tackling Bullying and Harassment**

#### **Course Description**

This course addresses the prevalence and effects of bullying and harassment at sea, with a focus on women seafarers. It includes an analysis of the International Labour Organization (ILO) study on women seafarers, guidance on eliminating shipboard harassment, and recommendations for stakeholders to improve onboard culture. The Merchant Navy Code of Conduct and strategies for preventing workplace harassment are also covered.

The Course:

- Addresses SIRE 2.0 Section 3: Crew Management 3. 4.1, 3.4.2 and 3.5.1

### **MSSV-2009 Techniques of Interpersonal Communication**

#### **Course Description**

This course provides a deep dive into the essential techniques of interpersonal communication, vital for effective collaboration in the maritime industry. Participants will explore the elements of interpersonal communication, including non-verbal and face-to-face interactions, and develop skills to enhance clarity, completeness, correctness, conciseness, and consistency. The course also covers verbal and paraverbal communication, focusing on their types and nuances. By mastering these techniques, mariners can foster stronger professional relationships and improve teamwork onboard.

The Course:

- Addresses SIRE 2.0 Section 3: Crew Management 3. 2.8

### **MSSV-2010 Understanding Non-Verbal Communication**

#### **Course Description**

This course focuses on the critical role of non-verbal communication in effective interpersonal interactions, particularly in the maritime setting. Topics include the importance and purpose of non-verbal cues, with specific emphasis on facial expressions, posture, and gestures. Participants will learn to identify and interpret positive and negative gestures to enhance understanding and improve communication. This course equips mariners with the skills to navigate complex interpersonal dynamics through non-verbal awareness and application.

The Course:

- Addresses SIRE 2.0 Section 3: Crew Management 3. 2.8

### **MSSV-2011 Communication for Efficient Ship Operations**

#### **Course Description**

This course highlights the pivotal role of effective communication in ensuring safe and efficient ship operations. Participants will explore workplace communication, the importance of feedback, and effective written communication practices. Key operational scenarios, such as watchkeeping on the bridge, in the engine room of UMS ships, and during night traffic or bad weather, are addressed. The course also examines cultural differences, language barriers, and race, culture, and gender issues, providing tools to enhance interactions during diverse shipboard operations.

The Course:

- Addresses SIRE 2.0 Section 3: Crew Management 3. 2.8

## **SIRE Chapter 04: Navigation and Communications**

### **MSSV-2051 Mastering Bridge Equipment: A Navigation Primer**

#### **Course Description**

This course provides foundational training in the operation of critical bridge equipment necessary for safe navigation. Participants will be introduced to the use of electronic navigation aids, including radar, the Automatic Radar Plotting Aid (ARPA), and the Electronic Chart Display and Information System (ECDIS). The course also covers traditional tools like the magnetic and gyro compasses and provides an overview of the basic principles of the Global Positioning System (GPS). Additionally, steering control systems and automatic pilot functionalities are covered to ensure that trainees are adept at managing navigational systems onboard.

The Course:

Addresses SIRE 2.0 Section 4: Navigation and Communications- 4.1.1;4.1.2;4.1.3; 4.1.6.

### **MSSV-2052 Techniques for Navigational Safety**

#### **Course Description**

Focusing on enhancing navigational safety, this course addresses both the theoretical and practical aspects of safe ship operation. Topics include navigational aids, best practices, and handling steering systems failures. Participants will explore critical shiphandling maneuvers with tugs, COLREGS compliance (specifically Rule 5 on lookout), and scenarios such as bad weather navigation and watchkeeping at night. Procedures for dealing with emergencies, such as man overboard, squat effect, shallow waters, and communication with pilots, are also included. This course emphasizes hands-on knowledge essential for maintaining navigational safety in various challenging situations.

The Course:

Addresses SIRE 2.0 Section 4: Navigation and Communications- 4.2.1;4.2.3; 4.3.1.

### **MSSV-2053 Ship Handling 101: Core Skills for Mariners**

#### **Course Description**

This course introduces mariners to the fundamentals of ship handling, focusing on maneuvering data and controllable factors such as propulsion engines, rudders, thrusters, anchors, tugs, and draft and trim. Participants will learn how these elements, along with propeller characteristics, influence vessel maneuverability. Designed for beginners and experienced mariners alike, this course builds confidence in handling vessels safely and efficiently in diverse scenarios.

The Course:

Addresses SIRE 2.0 Section 4: Navigation and Communications-4.2- Navigational Procedures

### **MSSV-2054 External Effects on Ship Maneuvering**

#### **Course Description**

This course explores the external factors that influence ship maneuvering, including turning circles, squat, and shallow water effects. Participants will examine the impacts of wind, current, loading, and sternway on vessel behavior, as well as combined effects of wind and current, navigation around bends, and tug assistance. Additionally, the course covers interaction effects between vessels. It provides a comprehensive understanding of these dynamics to enhance safe and efficient ship operations.

The Course:

Addresses SIRE 2.0 Section 4: Navigation and Communications-4.2- Navigational Procedures

### **MSSV-2055 Resilient Ship Handling Techniques for Adverse Situations**

#### **Course Description**

Maritime operations frequently face adverse weather conditions, and this course focuses on the strategies necessary to navigate through them safely. Participants will learn techniques for managing controlled turns, parametric rolling, and resonant rolling. The course covers heavy weather ship handling, storm navigation, and the formation of safety sectors during storms. Additionally, special sections address safe navigation in icy waters, berthing and unberthing maneuvers in high winds or strong currents, and the precautions needed when handling ships near icebergs.

The Course:

Addresses SIRE 2.0 Section 4: Navigation and Communications-4.2- Navigational Procedures; and 4.4.- Communications Equipment and Procedures

### **MSSV-2056 Safe and Efficient Ship Handling Techniques**

#### **Course Description**

This course is designed to teach advanced ship handling techniques that are crucial in both routine and emergency scenarios. Topics include anchoring, berthing, and unberthing maneuvers in different weather conditions, such as calms, tides, currents, and strong winds. Safety protocols for handling tugs, storm navigation, and weather routing are also discussed, ensuring that ship handlers are prepared to manage complex and potentially hazardous situations while maintaining the highest levels of safety.

The Course:

Addresses SIRE 2.0 Section 4: Navigation and Communications-4.2- Navigational Procedures

### **MSSV-2057 COLREG Part A and B: Rule 1-10**

#### **Course Description**

This course provides a detailed overview of the International Regulations for Preventing Collisions at Sea (COLREG), focusing on Rules 1–10. Covering Part A (General) and Part B (Steering and Sailing Rules), it explains key principles such as application, responsibility, general definitions, and vessel conduct in all visibility conditions. Topics include maintaining a lookout, safe speed, collision avoidance, navigation in narrow channels, and traffic separation schemes. Essential for safe and compliant maritime navigation.

The Course:

Addresses SIRE 2.0 Section 4: Navigation and Communications-4.2- Navigational Procedures-4.2.1 and 4.2.2 and 4.2.3

### **MSSV-2058 COLREG Part B Section II and III: Rule 11-19**

#### **Course Description**

This course explores the rules governing the conduct of vessels in sight of one another and in restricted visibility, as outlined in COLREG Part B, Sections II and III. Topics include application, sailing vessels, overtaking, head-on and crossing situations, and the responsibilities of give-way and stand-on vessels. The course also addresses Rule 19, focusing on safe navigation and collision avoidance in restricted visibility, ensuring mariners are equipped to handle diverse operational scenarios safely and effectively.

The Course:

Addresses SIRE 2.0 Section 4: Navigation and Communications-4.2- Navigational Procedures-4.2.1 and 4.2.2 and 4.2.3

### **MSSV-2059 COLREG PART C - LIGHTS AND SHAPES- Rule 20–31**

#### **Course Description**

This course provides a comprehensive understanding of Part C of the International Regulations for Preventing Collisions at Sea (COLREG), focusing on the use of lights and shapes for vessel identification and safe navigation. Topics include application, definitions, visibility of lights, and specific requirements for power-driven vessels, towing and pushing, sailing vessels, fishing vessels, and vessels under various operational conditions. It also covers rules for vessels constrained by their draught, pilot vessels, anchored or aground vessels, and seaplanes. Essential for maintaining safety and compliance in all visibility conditions.

The Course:

Addresses SIRE 2.0 Section 4: Navigation and Communications-4.2- Navigational Procedures-4.2.1 and 4.2.2 and 4.2.3

### **MSSV-2060 COLREG PART D - SOUND AND LIGHT SIGNALS-Rule 32–37**

#### **Course Description**

This course covers Part D of COLREG, focusing on sound and light signaling requirements to enhance maritime safety. Topics include definitions, sound signal equipment, maneuvering and warning signals (including inland specifics), and sound signals in restricted visibility. Rules for attracting attention and distress signaling are

also explored. The course incorporates the Annexes, which provide technical details on lights, shapes, sound signal placement, and additional operational guidelines, ensuring comprehensive compliance and safety at sea.

The Course:

Addresses SIRE 2.0 Section 4: Navigation and Communications-4.1- Navigation Equipment-4.1.14 and 4.1.15

### **MSSV-2061 COLREG Part E and F plus ANNEXES- Rule 38- 41**

#### **Course Description**

This course covers the final sections of the International Regulations for Preventing Collisions at Sea (COLREG). Part E discusses exemptions under Rule 38, while Part F focuses on the verification of compliance, addressing definitions, application, and compliance verification processes. The Annexes provide technical details essential for practical implementation, including positioning and specifications for lights and shapes, additional signals for fishing vessels, sound signal appliances, distress signals, and guidelines specific to pilot vessels. This comprehensive course ensures full understanding of the rules and their practical application to maintain maritime safety and compliance.

The Course:

Addresses SIRE 2.0 Section 4: Navigation and Communications-4.1 and 4.2- Navigational Equipment and Procedures- 4.1.14 and 4.1.15; 4.2.1 and 4.2.3.

### **SIRE Chapter 05: Safety Management**

#### **MSSV-2101 Identifying Hazards onboard**

##### **Course Description**

This course provides a comprehensive guide to identifying and managing hazards in the maritime workplace, emphasizing safety and risk mitigation. Participants will learn about hazard types, dangers, and risks, as well as methods for controlling shipboard hazards. Specific modules address hazards unique to bulk carriers, container ships, and Ro-Ro vessels, as well as exposure to dangerous substances, working in machinery spaces, and shipyard painting precautions. The course also focuses on enclosed space entry and tank entry in unsafe atmospheres, ensuring a thorough understanding of safety protocols and preventative measures.

The Course:

Addresses SIRE 2.0 Section 5: Safety Management; 5.1. Emergency Response Plans and Drills

#### **MSSV-2102 Precautions at work for hazards**

##### **Course Description**

This course focuses on safety precautions essential for mitigating workplace hazards onboard ships. It covers safe practices in vessel accommodations, galley fire prevention, and working with electrical equipment and tools. Participants will learn safety measures for hot work, working at heights, stairwell and ladder use, and

operating watertight doors. The course also addresses precautions for working with wire and fiber ropes, as well as mooring lines, equipping mariners with the knowledge to maintain a safe working environment.

The Course:

Addresses SIRE 2.0 Section 5: Safety Management; 5.7. Safety Management

### **MSSV-2103 Personal Safety and wellbeing onboard**

#### **Course Description**

This course provides essential guidance on maintaining personal safety and wellbeing at sea, focusing on both physical and mental health. Key topics include personal protective equipment (PPE), lifejackets, exposure suits, breathing apparatus, and personal survival equipment. Participants will also learn about procedural checks for BA usage, the importance of hygiene, crew rest hours, and managing fatigue. The course highlights factors affecting individual performance, promoting a safer and healthier work environment for seafarers.

The Course:

Addresses SIRE 2.0 Section 5: Safety Management; 5.4. Lifesaving appliances

### **MSSV-2104 Proactive Safety Practices for accident prevention**

#### **Course Description**

This course emphasizes proactive approaches to preventing accidents onboard by fostering situational awareness and applying structured safety tools. Topics include Job Safety Analysis (JSA) and case studies like ballast tank explosions, analyzed through frameworks such as the Domino Theory, Reason's Model, and Multiple Cause Theory. Participants will also explore safety familiarization under the ISM Code and the importance of understanding emergency duties and crew stations. The course equips mariners with the knowledge to anticipate risks and maintain a culture of safety.

The Course:

Addresses SIRE 2.0 Section 5: Safety Management; 5.7. Safety Management and 5.8. Area Safety Inspections.

### **MSSV-2105 Building a Proactive Safety Culture at Sea**

#### **Course Description**

Participants in this course will learn how to build and maintain a safety culture onboard ships. Topics include understanding human error, the role of the ISM Code in maritime safety, and the implementation of safety management systems (SMS). The course provides strategies for accident prevention and managing human factors in maritime incidents, ensuring a proactive approach to fostering a safety-first mindset in maritime operations.

The Course:

Addresses SIRE 2.0 Section 5: Safety Management; 5.7. Safety Management



## **MSSV-2106 Occupational Safety and Enclosed Space Entry**

### **Course Description**

This course focuses on essential safety practices and protocols for occupational safety onboard ships, with a particular emphasis on enclosed space entry. Topics include Job Safety Analysis (JSA), general occupational safety and health guidelines, and the interplay between automation and safety. Participants will learn the procedures for securing confined spaces, necessary precautions before entry, and the implementation of an enclosed space permit-to-work system. The course promotes a safe working environment and ensures compliance with maritime safety standards.

The Course:

Addresses SIRE 2.0 Section 5: Safety Management; 5.1 Emergency Response Plans and Drills; 5.1.4. and 5.5 Permits to work 5.5.1.

## **MSSV-2107 Safe Working Practices onboard**

### **Course Description**

This course provides a comprehensive overview of safe working practices to mitigate risks and prevent accidents onboard ships. Topics include the safe isolation of electrical plants, high-voltage and hot work permit-to-work systems, and workshop safety precautions. Participants will also learn best practices for working with hand tools, portable electric tools, abrasive wheels, compressed air, and gas cylinders. Additional modules cover working aloft, over the side, at heights, and handling mooring and coiled lines, ensuring a safer work environment for all crew members.

The Course:

Addresses SIRE 2.0 Section 5: Safety Management; 5.5. Permits to work; 5.5.2; 5.5.6.

## **MSSV-2108 Theory of Fire and its Prevention**

### **Course Description**

This course provides a foundational understanding of fire dynamics and strategies for fire prevention onboard ships. Participants will explore the fire triangle and tetrahedron, the chemistry and propagation of fire, and the classification and classes of fire. The course delves into how fire spreads, common causes of onboard fires, and effective measures to prevent them. Designed to enhance safety awareness, it equips mariners with the knowledge to minimize fire risks and maintain a safe working environment.

The Course:

Addresses SIRE 2.0 Section 5: Safety Management; 5.1 Emergency Response Plans and Drills; 5.1.2.

## **MSSV-2109 Emergency Launching of Survival Crafts at Sea**

### **Course Description**

Participants will be trained in the procedures for launching survival crafts and rescue boats, including lifeboats, life rafts, and free-fall lifeboats. The course covers the operation of various survival craft systems, hook release mechanisms, and the correct

procedures for launching in rough weather. Special attention is given to ensuring safe and efficient evacuation during emergencies.

The Course:

Addresses SIRE 2.0 Section 5: Safety Management; 5.4. Lifesaving appliances; 5.4.1 and 5.4.2

### **MSSV-2110 Firefighting Equipment and Tools**

#### **Course Description**

This course offers a detailed overview of essential firefighting equipment and tools used onboard ships. Topics include fire main hydrants, hoses, nozzles, foam applicator units, and various portable extinguishers for combating Class A, B, C, and electrical fires. Participants will also learn about the fireman's outfits, breathing apparatus, emergency escape breathing devices, and resuscitation apparatus. The course emphasizes the importance of pre-use checks for breathing apparatus and the maintenance of firefighting appliances, ensuring readiness and effectiveness during emergencies.

The Course:

Addresses SIRE 2.0 Section 5: Safety Management; 5.3. Portable firefighting appliances; 5.3.1 to 5.3.5.

### **MSSV-2111 Onboard Fire Detection and Fixed Firefighting Systems**

#### **Course Description**

This course provides an in-depth understanding of fire detection and fixed firefighting systems onboard ships. Participants will explore fire detection systems, including smoke, heat, and flame detectors, and the operation of automatic sprinkler systems. The course also covers fixed fire detection and alarm systems for accommodations, fixed water spray and steam systems, and the remote operation of QC valves, fire dampers, and oil pumps. Designed to enhance fire safety, this course ensures mariners are well-versed in the use and maintenance of these critical systems.

The Course:

Addresses SIRE 2.0 Section 5: Safety Management; 5.2. Fixed Fire Protection Systems; 5.2.1 to 5.2.15.

### **MSSV-2112 Fire Prevention and Shipboard Safety Systems**

#### **Course Description**

This course focuses on fire prevention measures and the safety systems essential for maintaining fire safety onboard ships. Topics include identifying fire hazards, the arrangement and principles of bulkheads, Class A-60 accommodation bulkheads, and ship construction arrangements for fire safety. Participants will learn about flame screens, arresters, fire dampers, and fire screen doors, as well as the safe handling of flammable liquids and precautions for hot work. The course also covers cargo hold smoke detection systems and tank inerting processes, equipping mariners to prevent and respond to fire risks effectively.

The Course:

Addresses SIRE 2.0 Section 5: Safety Management; 5.2. Fixed Fire Protection Systems;5.2.16.

### **MSSV-2113 Understanding the International Safety Management Code**

#### **Course Description**

This course provides an overview of the ISM Code and its role in ensuring maritime safety and environmental protection. Topics include the implementation of safety management systems, organizational responsibilities, shipboard audits, and accident prevention. The course emphasizes the importance of compliance with the ISM Code for maintaining safe and environmentally responsible operations onboard ships.

The Course:

Addresses SIRE 2.0 Section 5: Safety Management; 5.7. Safety Management; 5.7.1 to 5.7.3.

### **MSSV-2114 Implementing Shipboard Safety Management Systems**

#### **Course Description**

This course offers a comprehensive understanding of Safety Management Systems (SMS) and their integration with the ISM Code. Participants will learn about the key components of SMS, organizational responsibilities, risk management, and the importance of addressing non-conformities. The course also focuses on effective risk management strategies and human factors that contribute to shipboard incidents.

The Course:

Addresses SIRE 2.0 Section 5: Safety Management; 5.7. Safety Management; 5.7.1 to 5.7.3.

### **MSSV-2115 Fundamentals of Risk Analysis**

#### **Course Description**

This course provides a foundational understanding of risk analysis and its application in the maritime industry. Participants will explore the principles of risk management, including the system approach and the concepts of hazard, risk, and ALARP. The course offers a guide to hazard and risk assessment, along with practical examples of assessing and controlling risks onboard ships. Additional topics include risk evaluation criteria and tailored guidance for the maritime industry, equipping participants to implement effective risk management practices.

The Course:

Addresses SIRE 2.0 Section 5: Safety Management; 5.5. Permits to work;5.5.3 and 5.5.4

### **MSSV-2116 Managing Risks: Theories and Practices**

#### **Course Description**

This course explores advanced risk management theories and their practical applications in maritime operations. Participants will analyze case studies, such as a

ballast tank explosion, through frameworks like the Domino Theory, Fault Tree Analysis (FTA), and Event Tree Analysis (ETA). The integration of these methods is examined using the Bow Tie Model, with insights into its application in SIRE assessments. Topics also include Failure Mode and Effect Analysis (FMEA), risk-based decision-making, and voyage-specific risk assessments, such as those for piracy. Practical examples illustrate the importance of effective risk control measures in maintaining safety and operational efficiency.

The Course:

Addresses SIRE 2.0 Section 5: Safety Management; 5.5. Permits to work;5.5.3 and 5.5.4

### **MSSV-2117 Abandon Ship and Survival Drills for Compliance**

#### **Course Description**

This course focuses on abandon ship procedures, survival techniques, and emergency preparedness. Participants will learn how to use survival equipment, distress signals, and digital selective calling. The course includes practical guidance on abandon ship drills, survival at sea, and techniques for ensuring crew safety during emergencies.

The Course:

Addresses SIRE 2.0 Section 5: Safety Management; 5.1.6 and 5.1.15.

### **MSSV-2118 Ensuring Electrical Safety in Maritime Operations**

#### **Course Description**

This course focuses on shipboard electrical safety, covering topics such as electrical survey requirements, power distribution, and high-voltage safety protocols. Participants will learn about lockout-tagout (LOTO) procedures, electrical safety maintenance, and first aid for electrical accidents. The course ensures that ship personnel understand the risks of electrical hazards and how to manage them effectively.

The Course:

Addresses SIRE 2.0 Section 5: Safety Management; 5.1. Emergency Response Plans and Drills; 5.1.11

### **MSSV-2119 Safe Entry and Rescue Procedures for Enclosed Spaces**

#### **Course Description**

This course trains participants in safe entry and rescue procedures for enclosed spaces. Topics include general precautions, atmospheric testing, the duties of responsible officers, and rescue operations using breathing apparatus and resuscitation equipment. The course emphasizes risk assessment and safety protocols to ensure that enclosed space entry is conducted safely and efficiently.

The Course:

Addresses SIRE 2.0 Section 5: Safety Management; 5.1. Emergency Response Plans and Drills; 5.1.4.

## **MSSV-2120 Atmosphere Monitoring Instruments for Maritime Safety**

### **Course Description**

In this course, participants will gain detailed knowledge about atmospheric monitoring instruments used for hazard control. Topics include toxic gas detectors, CO2 analyzers, infrared gas detectors, and flame ionization detectors. The course also covers calibration and maintenance procedures for atmosphere testing equipment, ensuring safe and effective atmosphere management onboard ships.

The Course:

Addresses SIRE 2.0 Section 5: Safety Management; 5.6. Fixed and portable gas detecting systems;5.6.1.

## **MSSV-2121 Understanding and Operating Gas Analyzers Onboard**

### **Course Description**

This course offers an overview of the gas analyzers used onboard ships to monitor and ensure atmospheric safety. It covers toxic gas detectors, multi-gas detectors, infrared gas detectors, and CO2 analyzers, as well as calibration procedures and the characteristics of different atmospheric monitoring instruments.

The Course:

Addresses SIRE 2.0 Section 5: Safety Management; 5.6. Fixed and portable gas detecting systems;5.6.6.

## **MSSV-2122 Effective Ventilation Systems for Maritime Operations**

### **Course Description**

This course provides an in-depth overview of shipboard ventilation systems, covering both natural and mechanical ventilation methods for cargo spaces, accommodation areas, and machinery rooms. Topics include energy efficiency opportunities, fire dampers, and ventilation system maintenance, ensuring optimal air quality and safety onboard.

The Course:

Addresses SIRE 2.0 Section 5: Safety Management; 5.8. Area Safety Inspections.

## **SIRE Chapter 06: Pollution Prevention**

### **MSSV-2151 Preventing Marine Pollution: Policies and Practices**

#### **Course Description**

This course covers the MARPOL regulations and the various sources and effects of marine pollution. Participants will learn about measures to reduce pollution, the legal framework for pollution prevention, and practical steps for compliance with international pollution prevention standards.

The Course:

Addresses SIRE 2.0 Section 6: Pollution Prevention; 6.1. Pollution Prevention - Record Books.

## **MSSV-2152 Oil Pollution Control under MARPOL Annex I**

### **Course Description**

This course focuses on the control of oil pollution from ships, including operational discharge of oil, the use of oil discharge monitoring and control systems, and bilge oil separators. Participants will learn about oil record books, slop tanks, segregated ballast tanks, and the ballasting arrangements of double-hull tankers. The course also includes case studies, such as the collisions involving the Baltic Carrier and MV Wakashio, to illustrate real-world examples of oil spill management and cleanup methods.

The Course:

Addresses SIRE 2.0 Section 6: Pollution Prevention; 6.1. Pollution Prevention - Record Books; 6.1.2; 6.1.3.

## **MSSV-2153 MARPOL Annex II: Pollution from Noxious Liquid Substances**

### **Course Description**

This course covers the regulations concerning the control of pollution by noxious liquid substances (NLS) carried in bulk. Participants will explore chemical tanker arrangements, certificates and surveys, and the chemical tank and piping systems required for compliance. The course also includes guidance on the Shipboard Marine Pollution Emergency Plan (SMPEP) and the disposal of slops through reception facilities.

The Course:

Addresses SIRE 2.0 Section 6: Pollution Prevention; 6.1. Pollution Prevention - Record Books; 6.1.1.

## **MSSV-2154 MARPOL Annex III: Prevention of Pollution by Packaged Goods**

### **Course Description**

This course introduces the regulations for the prevention of pollution by harmful substances carried in packaged form. Participants will gain an understanding of the International Maritime Dangerous Goods (IMDG) Code, best practices for handling dangerous goods, and port state control (PSC) procedures related to the transport of harmful substances.

The Course:

Addresses SIRE 2.0 Section 6: Pollution Prevention; for All Ships category and Non-Tankers; 6.2. Cargo and Bunker Operations

## **MSSV-2155 MARPOL Annex IV: Prevention of Sewage Pollution at Sea**

### **Course Description**

This course addresses the regulations concerning the prevention of pollution by sewage from ships. Topics include sources of sewage pollution, control measures, sewage treatment plants, and reception facilities. Special attention is given to the sewage control requirements in areas like the Baltic Sea and the use of systems like EVAC and Elsan-type sewage treatment systems.

The Course:

Addresses SIRE 2.0 Section 6: Pollution Prevention; for All Ships category including Tankers; 6.5. Machinery Space Pollution Prevention; 6.5.2.

### **MSSV-2156 MARPOL Annex V: Preventing Pollution from Garbage**

#### **Course Description**

This course covers the prevention of pollution by garbage from ships, focusing on garbage management plans, the proper use of garbage record books, and the operational requirements of marine incinerators. Participants will learn about the design, operation, and testing of incinerators, as well as the compliance requirements for port reception facilities.

The Course:

Addresses SIRE 2.0 Section 6: Pollution Prevention; 6.1. Pollution Prevention - Record Books; 6.1.4.

### **MSSV-2157 MARPOL Annex VI: Air Pollution Control from Ships**

#### **Course Description**

Focusing on the prevention of air pollution from ships, this course addresses the control of nitrogen oxides (NOx) and sulfur oxides (SOx) emissions, the environmental and economic impacts of exhaust gas scrubber systems, and the types of scrubbers used onboard ships. Participants will also learn about the management of ozone-depleting substances and the various scrubber system configurations, including open-loop, closed-loop, and hybrid scrubbers.

The Course:

Addresses SIRE 2.0 Section 6: Pollution Prevention. 6.1. Pollution Prevention - Record Books;6.1.5; 6.1.6.

### **MSSV-2158 Essential Equipment for Oil Pollution Prevention**

#### **Course Description**

This course focuses on the systems and equipment used to prevent oil pollution in marine environments. Participants will study oil discharge monitoring and control systems (ODMC), equipment maintenance, and operational procedures for ensuring compliance with international pollution prevention standards.

The Course:

Addresses SIRE 2.0 Section 6: Pollution Prevention; 6.6. Oil Discharge Monitors; 6.6.1 , 6.6.2.

### **MSSV-2159 Managing Shipboard Waste and Incineration**

#### **Course Description**

This course covers sewage treatment technologies onboard ships, including vacuum toilet systems and various marine sewage treatment systems. Participants will learn about the sampling, testing, and operational procedures needed to ensure safe and environmentally friendly waste management onboard.

The Course:

Addresses SIRE 2.0 Section 6: Pollution Prevention; 6.5.- Machinery Space Pollution Prevention; 6.5.2.

### **MSSV-2160 Fundamentals of Energy Efficiency and GHG Emissions**

#### **Course Description**

This course provides a comprehensive introduction to energy efficiency and its role in reducing greenhouse gas (GHG) emissions in the maritime industry. Participants will explore the concepts of energy efficiency, the greenhouse effect, atmospheric GHG concentrations, and ozone depletion. The course examines CO<sub>2</sub> emissions from ships, the International Maritime Organization's (IMO) energy efficiency initiatives, and mandatory GHG requirements. It also highlights strategies for GHG reduction through alternative energy sources, fostering environmentally sustainable shipping practices.

The Course:

Addresses SIRE 2.0 Section 6: Pollution Prevention; 6.1- Pollution Prevention; 6.1.5; 6.1.6.

### **MSSV-2161 Energy Efficiency Indices and Ship Performance**

#### **Course Description**

This course focuses on the metrics and strategies for enhancing energy efficiency in ship operations and design. Participants will explore operational profiles of ships, the Energy Efficiency Design Index (EEDI), its calculation, and methods for reducing propulsion losses and resistance. The course addresses ship-engine-propeller matching, EEDI reduction, and verification for major conversions. Topics include the Energy Efficiency Operational Indicator (EEOI), its establishment, and improvements in EEDI through technologies like dual-fuel diesel engines and waste heat recovery systems, promoting sustainable maritime practices.

The Course:

Addresses SIRE 2.0 Section 6: Pollution Prevention. 6.1. Pollution Prevention - Record Books; 6.1.6.

### **MSSV-2162 Ship Energy Management Systems and Practices**

#### **Course Description**

This course provides an in-depth understanding of ship energy management systems, emphasizing practical tools and strategies for improving energy efficiency. Topics include the Ship Energy Efficiency Management Plan (SEEMP), its implementation using the PDCA (Plan-Do-Check-Act) cycle, and guidance for effective application. Participants will explore the energy audit process, its phases, and review methods, along with techniques for measuring CO<sub>2</sub> emissions. The course also covers operational measures such as just-in-time arrivals or departures, in-port energy efficiency practices, and the use of Onshore Power Supply (OPS) systems to minimize environmental impact.



The Course:

Addresses SIRE 2.0 Section 6: Pollution Prevention. 6.1. Pollution Prevention - Record Books; 6.1.6.

### **MSSV-2163 Advanced Technologies for Energy Efficiency**

#### **Course Description**

This course explores cutting-edge technologies and practices to enhance energy efficiency in the maritime sector. Key topics include the use of Variable Frequency Drives (VFDs) for AC motor speed control, their application in new and existing ships, and energy-efficient solutions enabled by VFDs. Participants will learn about regenerative and reheating advantages in steam cycles, the operation of three-phase rectifier and inverter circuits in VFD devices, and the principles of VFD circuit operation. Additional modules cover technical upgrades, hull and propeller coatings, and waste heat recovery systems, providing comprehensive insights into modern energy-efficient maritime practices.

The Course:

Addresses SIRE 2.0 Section 6: Pollution Prevention. 6.1. Pollution Prevention - Record Books; 6.1.6.

### **MSSV-2164 Operational Practices and Fleet Optimization**

#### **Course Description**

This course focuses on optimizing fleet operations to enhance energy efficiency and operational effectiveness. Topics include fleet operation management, strategies for fleet optimization, and the benefits of slow steaming. Participants will explore weather routing techniques, including ship- and shore-based approaches, and vessel performance monitoring. The course also addresses ship maintenance practices that improve energy efficiency, hull cleaning for reduced resistance, and advanced fleet management strategies. It equips maritime professionals with tools to optimize performance and reduce environmental impact.

The Course:

Addresses SIRE 2.0 Section 6: Pollution Prevention. 6.1. Pollution Prevention - Record Books; 6.1.6.

### **MSSV-2165 Shipboard Energy Management and Fuel Optimization**

#### **Course Description**

This course offers a comprehensive approach to managing energy and optimizing fuel usage onboard ships. Participants will explore shipboard energy efficiency measures, the impact and optimization of trim, and the role of ballast water management in energy efficiency. Key topics include managing hull resistance, machinery load utilization, and fuel management practices, covering contaminants, storage, transfer, changeover, treatment, and viscosity control. The course also delves into boiler energy efficiency and cargo heating planning and optimization, equipping maritime professionals to enhance operational efficiency and reduce environmental impact.

The Course:

Addresses SIRE 2.0 Section 6: Pollution Prevention. 6.1. Pollution Prevention - Record Books; 6.1.6.

## **SIRE Chapter 07: Maritime Security**

### **MSSV-2176 Understanding Cyber Threats**

#### **Course Description**

This course explores the evolving landscape of cyber threats and their impact on the maritime industry. Topics include common forms of cyber threats, both targeted and non-targeted, and an overview of cyber security risks specific to shipping. Participants will gain insights into onboard and maritime cyber security practices, learn to identify cyber threats and assess their potential effects, and understand the legal aspects of cyber security. The course also highlights maritime vulnerabilities, providing strategies to safeguard operations against cyber incidents.

The Course:

Addresses SIRE 2.0 Section 7: Maritime Security; 7.5. Cyber Security; 7.5.1

### **MSSV-2177 Cyber Security of Shipboard Systems**

#### **Course Description**

This course provides an in-depth examination of cyber security for shipboard systems, focusing on identifying and mitigating vulnerabilities. Topics include the ship-shore interface, critical onboard systems, and specific examples such as GPS spoofing, spear-phishing, and ransomware. Participants will learn about on-board risks, segregation of IT and OT systems, and strategies for cyber risk assessment, including the CIA model. The course also addresses third-party access risks, stages of a cyber-attack, and effective defense strategies to safeguard shipboard operations.

The Course:

Addresses SIRE 2.0 Section 7: Maritime Security; 7.5. Cyber Security; 7.5.1

### **MSSV 2178-Ship Security Management**

#### **Course Description**

This course provides a comprehensive understanding of ship security management, focusing on the ISPS Code, Port State Control, and the development and implementation of the Ship Security Plan (SSP). Participants will learn about security assessments, responsibilities, alert systems, and procedures for maintaining records. Designed for maritime professionals, the course equips participants with the skills to enhance ship security and comply with international safety and regulatory standards.

The Course:

Addresses SIRE 2.0 Section 7: Maritime Security; 7.2 Ship hardening and access control; 7.2.1; 7.2.2.

### **MSSV- 2179- Ship Hardening and Access Control**

#### **Course Description**

This course focuses on measures to enhance ship security through hardening and controlled access. Participants will learn about implementing ship security plans, security alert systems, and enhancing vigilance onboard. Topics include access management, gangway control, risk management in high-risk areas, and threat assessment. The course also covers voyage-specific risk assessments, equipping maritime professionals to mitigate threats and maintain safety during operations.

The Course:

Addresses SIRE 2.0 Section 7: Maritime Security; 7.2 Ship hardening and access control; 7.2.1; 7.2.2.

### **MSSV- 2180- Ship Security Training and Drills**

#### **Course Description**

This course provides comprehensive training on ship security drills and exercises to enhance preparedness. Topics include various drill types and incident scenarios, contingency planning and execution, and the importance of post-incident reporting and follow-up. Participants will also learn about conducting effective security training drills, equipping crew members to respond confidently to potential security threats.

The Course:

Addresses SIRE 2.0 Section 7: Maritime Security; 7.3 Communication and Monitoring; 7.3.1.

### **SIRE Chapter 8.1/8.3: Cargo and Ballast System-Petroleum**

#### **MSSV-2201 Liquid Cargo Operations: Handling and Documentation Mastery**

##### **Course Description**

This course focuses on the documentation and record-keeping necessary for transporting liquid cargoes on oil tankers. Key topics include port log entries, seaworthiness documentation, and the preparation of bills of lading. The course emphasizes the functions and types of cargo documentation, including the Notice of Readiness (NOR), ensuring that all legal and procedural requirements are met during cargo handling.

The Course:

Addresses SIRE 2.0 Section 8.1/8.3: Cargo and Ballast System-Petroleum; 8.99. All types; 8.99.1

#### **MSSV-2202 Managing Flammability Risks and Static Control in Oil Cargoes**

##### **Course Description**

Participants will explore the fire hazards associated with oil cargoes and the importance of controlling electrostatic discharge during cargo handling. The course covers the prevention of static electricity accumulation, the use of lightning conductors, and other safety measures to mitigate the risks of flammability during oil tanker operations.

The Course:

Addresses SIRE 2.0 Section 8.1/8.3: Cargo and Ballast System; 8.3. Oil and Chemical; 8.3.24.

## **MSSV-2203 Introduction to Safe Oil Tanker Operations**

### **Course Description**

This course offers an overview of the key principles behind oil tanker operations, including voyage planning, stowage plans, and stability considerations. Participants will learn about the preparatory steps for cargo loading, monitoring the loading process, and ensuring that stability and stress limits are adhered to during the entire operation.

The Course:

Addresses SIRE 2.0 Section 8.1/8.3: Cargo and Ballast System; 8.3. Oil and Chemical;8.3.17; 8.3.24.

## **MSSV-2204 Oil Cargo Sampling and Handling: Best Practices**

### **Course Description**

Focusing on cargo handling and sampling, this course covers the preparations needed for loading operations, proper sampling techniques, and the specific procedures for sampling from pump stacks and manifolds. The course also addresses open sampling methods to ensure accuracy and compliance with cargo requirements.

The Course:

Addresses SIRE 2.0 Section 8.1/8.3: Cargo and Ballast System; 8.3. Oil and Chemical ; 8.3.5.

## **MSSV-2205 Efficient Cargo Discharge Operations for Oil Tankers**

### **Course Description**

This course guides participants through the fundamental procedures for discharging oil cargo. Key topics include the initiation and monitoring of discharge progress, tank cleaning procedures, and post-discharge inspections. Cofferdam purging and maintaining the integrity of cargo tanks are also emphasized to ensure the safe transfer of oil cargoes.

The course:

Addresses SIRE 2.0 Section 8.1/8.3: Cargo and Ballast System; 8.3. Oil and Chemical;8.3.17; 8.3.24.

## **MSSV-2206 Oil Tanker Cargo Handling: A Complete Manual**

### **Course Description**

This comprehensive course covers the step-by-step procedures for handling heated oil cargoes on tankers. Participants will learn about steam and thermal oil heating, deck-mounted heat exchangers, and the process for discharging heated cargoes. The course also addresses line blowing procedures, oil record book entries, and accurate cargo measurements to ensure smooth operations.

The course:

Addresses SIRE 2.0 Section 8.1/8.3: Cargo and Ballast System; 8.3. Oil and Chemical;8.3.17; 8.3.24.

## **SIRE Chapter 8.2/8.3: Cargo and Ballast System- Chemical MSSV-2226 Classification and handling of Chemical Cargoes**

### **Course Description**

This course provides a detailed overview of the classification and handling of chemical cargoes, focusing on their unique characteristics and safe transportation. Topics include the general classification of chemicals, types of chemical cargoes, and specific challenges posed by high-density, high-melting, low-boiling point, and high-viscosity cargoes. Participants will learn about the risks of unintended heating, polymerizing cargoes, and the role of inhibitors in maintaining chemical stability. The course equips maritime professionals with the knowledge to handle chemical cargoes safely and efficiently.

The course:

Addresses SIRE 2.0 Section 8.1/8.3: Cargo and Ballast System; 8.2. Chemicals; 8.2.2; 8.2.3.

## **MSSV-2227 Chemical Cargo Documentation and Recordkeeping**

### **Course Description**

This course focuses on the essential aspects of documentation and recordkeeping for the transportation of chemical cargo. Participants will learn about record-keeping necessities, port log entries, and the importance of statements of fact in ensuring accuracy. Topics include assessing seaworthiness, managing maximum cargo, and understanding cargo documentation. The course provides detailed insights into the functions, parties involved, and types of Bills of Lading, along with the preparation of Notices of Readiness (NOR), ensuring compliance and operational efficiency in chemical cargo handling.

The course:

Addresses SIRE 2.0 Section 8.1/8.3: Cargo and Ballast System; 8.2. Chemicals; 8.2.2.

## **MSSV-2228 Safe Handling of specialized chemical cargoes**

### **Course Description**

This course provides critical guidance for the safe handling of specialized chemical cargoes, addressing their unique risks and requirements. Topics include best practices for carrying chemical cargoes, necessary antidotes for potential exposure, and handling high vapor pressure cargoes. Participants will learn about managing static electricity-generating/accumulating cargoes, aromatic and polymerizing cargoes, and solidifying cargoes. The course emphasizes safety measures and operational protocols to ensure the secure transportation of these specialized cargoes.

The course:

Addresses SIRE 2.0 Section 8.1/8.3: Cargo and Ballast System; 8.2. Chemicals; 8.2.2.

## **MSSV-2230 Flammability and Electrostatic Safety for Chemical Cargo**

### **Course Description**

This course focuses on the hazards associated with flammability and electrostatic discharge when transporting chemical cargoes. Participants will study fire hazards, explosion risks, and methods of electrostatic control, including the use of lightning conductors and prevention strategies for methane flammability.

The Course:

Addresses SIRE 2.0 Section 8.1/8.3: Cargo and Ballast System; 8.2. Chemicals;8.2.3.

### **MSSV-2231 Voyage Planning and Cargo Stowage on Chemical tankers**

#### **Course Description**

This course provides essential knowledge for effective voyage planning and cargo stowage specific to chemical tankers. Participants will explore the principles of voyage planning, creating and executing stowage plans, and ensuring stability and stress considerations are met. The course emphasizes safe and efficient cargo stowage techniques, ensuring compliance with industry regulations and enhancing the safety and performance of chemical tanker operations.

The Course:

Addresses SIRE 2.0 Section 8.1/8.3: Cargo and Ballast System; 8.2. Chemicals;8.2.5.

### **MSSV-2232 Cargo Operations on Chemical tankers**

#### **Course Description**

This course focuses on the essential procedures and systems involved in chemical tanker cargo operations. Participants will gain insights into cargo piping systems, including the "One Tank One Pump" system, and learn about pre-loading checks and safe loading operations. The course addresses the unique considerations of transporting certain cargoes without inert gas, monitoring the loading process, and performing line blowing. It also covers chemical cargo tank temperature control to ensure safe and efficient handling of liquid chemicals during transit.

The Course:

Addresses SIRE 2.0 Section 8.1/8.3: Cargo and Ballast System; 8.2. Chemicals;8.2.2.

### **MSSV-2233 Effective Techniques for Handling and Sampling Liquid Cargo**

#### **Course Description**

This course provides practical knowledge about the handling and sampling of liquid cargoes. Participants will learn about cargo sampling procedures for pump stacks and manifolds, open sampling techniques, and consignee sample handling. The course ensures proficiency in cargo monitoring and handling during chemical tanker operations.

The Course:

Addresses SIRE 2.0 Section 8.1/8.3: Cargo and Ballast System; 8.3-Oil and Chemical-8.3.5.; 8.3.12.

### **MSSV-2234 Chemical Tanker Discharge Operations: Basic Principles**

#### **Course Description**

This course focuses on the discharging process for chemical tankers, including the initiation and monitoring of discharge operations. Tank cleaning procedures, maintaining cargo temperature, and post-discharge tank inspection are also covered to ensure safe and efficient cargo discharge.

The Course:

Addresses SIRE 2.0 Section 8.1/8.3: Cargo and Ballast System; 8.2. Chemicals;8.2.2.

### **MSSV-2235 Chemical Tanker Cargo Handling: Step-by-Step Guide**

#### **Course Description**

Participants will learn the step-by-step procedures for safely handling and discharging heated cargoes on chemical tankers. Topics include the use of steam and thermal oil heating, line blowing procedures, and accurate cargo measurements and calculations. Record-keeping practices for cargo operations are emphasized throughout the course.

The Course:

Addresses SIRE 2.0 Section 8.1/8.3: Cargo and Ballast System; 8.2. Chemicals;8.2.2; 8.2.3.

### **MSSV-2236 Chemical Tanker Arrangements**

#### **Course Description**

This course provides a comprehensive overview of chemical tanker arrangements and their operational intricacies. It begins with an introduction to chemical tankers, covering the responsibilities and training required for cargo operations. Key topics include static stability, MARPOL Annex II regulations on noxious liquid substances, and methods for isolating cargo tanks. Participants will explore the hazards of chemical cargoes, the evolution of chemical tankers, types and arrangements of cargo tanks, and the categories of noxious substances. The course also emphasizes the use of a chemical handbook for bulk shipment by water, ensuring safe and efficient operations.

The Course:

Addresses SIRE 2.0 Section 8.1/8.3: Cargo and Ballast System; 8.2. Chemicals.

### **MSSV-2237 Cargo piping and pumping systems on Chemical carriers**

#### **Course Description**

This course provides an in-depth understanding of cargo piping and pumping systems used on chemical carriers, ensuring safe and efficient cargo handling. Topics include the design and operation of piping systems, such as the Ring Main and One Tank One Pump systems, and the functioning of tank overflow control systems. Participants will learn about chemical cargo tank temperature control, gauging methods, and vapor emission control systems. The course also covers the types of cargo pumps, piping and pumping arrangements, and cargo tank sensors, along with safety guidelines for electrical systems onboard chemical tankers.

The Course:

Addresses SIRE 2.0 Section 8.1/8.3: Cargo and Ballast System; 8.3-Oil and Chemical; 8.3.20; 8.3.24.

### **MSSV-2238 Efficient Cargo Tank Management for Chemical Tankers**

#### **Course Description**

Participants will gain specialized knowledge in managing cargo tanks on chemical tankers. Topics include tank coatings, stainless steel tank management, and pickling and passivation procedures to ensure that tanks are ready for the safe transport of chemical cargoes.

The Course:

Addresses SIRE 2.0 Section 8.1/8.3: Cargo and Ballast System; 8.3-Oil and Chemical; 8.3.18; 8.3.19.

### **MSSV-2239 Gas Detection and Air Quality Analysis for Chemical Tankers**

#### **Course Description**

This course covers the various gas detection systems used onboard chemical tankers, including toxic gas detectors, oxygen analyzers, and infrared gas detectors. Participants will learn about the maintenance and calibration of atmospheric testing equipment, ensuring the safety of ship personnel and the vessel.

The Course:

Addresses SIRE 2.0 Section 8.1/8.3: Cargo and Ballast System; 8.3-Oil and Chemical; 8.3.7.

### **MSSV-2240 Inert Gas and Nitrogen Systems on Chemical Tankers**

#### **Course Description**

This course focuses on the critical role of inert gas and nitrogen systems in ensuring the safe transport of chemical cargoes. Participants will learn about the operation of inert gas systems, the types and functions of pressure/vacuum (PV) valves, and the use of nitrogen in chemical tankers. The course covers the basics of nitrogen systems, their applications, and the hazards associated with handling nitrogen, equipping mariners with the knowledge to manage these systems safely and effectively.

The course:

Addresses SIRE 2.0 Section 8.1/8.3: Cargo and Ballast System; 8.3. Oil and Chemical; 8.3.18; 8.3.19; 8.3.20.

### **MSSV-2241 Cargo handling equipment and maintenance on chemical tankers**

#### **Course Description**

This course provides a comprehensive guide to the handling and maintenance of equipment used in chemical tanker operations. Topics include maintenance protocols for cargo equipment, portable submersible pumps, and UTI gauges, along with ullage and temperature gauging controls. Participants will explore integrated alarm systems for enhanced safety, proper handling of cargo hoses and lines, and necessary precautions before cargo transfer. The course also addresses critical procedures like cofferdam



purging, managing cargo leakage, and ensuring cargo tank vapor tightness, promoting safe and efficient chemical cargo handling practices.

The course:

Addresses SIRE 2.0 Section 8.1/8.3: Cargo and Ballast System; 8.2. Chemicals;8.2.1; 8.2.3.

### **MSSV-2242 Best Practices for Tank Cleaning on Chemical Tankers**

#### **Course Description**

This course provides an in-depth look at the tank cleaning process for chemical tankers. Topics include the preparation of tanks for new cargoes, flushing of vent lines, and the management of tank atmospheres. Participants will learn about prohibited mixing guidelines and safety precautions during tank cleaning operations.

The course:

Addresses SIRE 2.0 Section 8.1/8.3: Cargo and Ballast System; 8.2. Chemicals;8.2.4.

### **MSSV-2243 Tank Cleaning and Gas-Freeing Techniques for Chemical Tankers**

#### **Course Description**

This course focuses on the essential procedures for tank cleaning and gas-freeing onboard chemical tankers. Participants will learn about the cargo tank cleaning process, including preparation for cargo changes and gas-freeing operations. Topics include effective cleaning through ventilation methods, guidelines for gas-freeing cargo tanks, and managing cleaning durations and temperatures. The course provides practical insights into maintaining safety and efficiency during tank cleaning and gas-freeing processes, ensuring readiness for subsequent operations.

The course:

Addresses SIRE 2.0 Section 8.1/8.3: Cargo and Ballast System; 8.2. Chemicals;8.2.4.

### **MSSV-2244 Tank Cleaning Standards and Tests in Chemical Tankers**

#### **Course Description**

This course provides a detailed exploration of tank cleaning standards and testing procedures crucial for chemical tanker operations. Topics include achieving Water White and High-Purity cleaning standards, managing solidifying and high-viscosity substances, and analyzing wash water, cargo lines, and hoses. Participants will learn testing principles such as the Permanganate Time Test, chloride testing, and hydrocarbon testing, including the Water Miscibility Test. The course also covers the purpose and methods of Wall Wash Tests, including color and acid wash tests, ensuring compliance with stringent cleanliness requirements for safe and efficient cargo handling.

The course:

Addresses SIRE 2.0 Section 8.1/8.3: Cargo and Ballast System; 8.2. Chemicals;8.2.4.

### **MSSV-2245 Ballasting and Deballasting Operations on Tankers**

#### **Course Description**

This course focuses on the critical aspects of ballasting and deballasting operations essential for tanker safety and compliance. Participants will explore the responsibilities associated with these operations, including adherence to standard operating procedures. Topics include the use of submerged ballast pumps, managing ballast operations in subzero temperatures, and the role of the ballast water management officer. The course also emphasizes proper record-keeping in the ballast water management record book, ensuring efficient and environmentally responsible practices.

The course:

Addresses SIRE 2.0 Section 8.1/8.3: Cargo and Ballast System; 8.99- All types- 8.99.1; 8.99.2; 8.99.4.

### **MSSV-2246 Cargo Operation Responsibilities on Tankers** **Course Description**

This course outlines the key responsibilities of ship staff during cargo operations on tankers, ensuring efficient and safe handling procedures. Participants will learn about the roles of port operations personnel and ship staff, with a focus on the chief officer's oversight duties, the team in-charge's operational leadership, and the duty officer's responsibilities during operations. This course equips maritime professionals with the knowledge to coordinate effectively and maintain safety standards during tanker cargo handling processes.

The course:

Addresses SIRE 2.0 Section 8.1/8.3: Cargo and Ballast System; 8.99- All types; 8.99.1; 8.99.2; 8.99.3.

### **MSSV-2247 Preparedness and Safety for Chemical Tanker Emergencies** **Course Description**

Focusing on emergency preparedness for chemical carriers, this course offers guidelines for addressing anticipated emergencies during cargo loading and discharging. Topics include the management of cargo spills and emergency protocols to ensure crew safety and environmental protection.

The course:

Addresses SIRE 2.0 Section 8.1/8.3: Cargo and Ballast System; 8.3. Oil and Chemical ; 8.3.8.

### **SIRE Chapter 8.4/8.5: Cargo and Ballast System-LPG/LNG** **MSSV-2251 Gas tanker Safety and Emergency management** **Course Description**

This course provides a comprehensive understanding of safety and emergency management for gas tankers, with a focus on LNG operations. Participants will explore regulatory requirements, safe operation practices, and effective management strategies for gas carriers. Key topics include the implementation of safety management systems under the ISM Code, emergency preparedness measures, and specialized firefighting

techniques for gas carriers. The course equips maritime professionals with the skills to maintain safety and respond effectively to emergencies in gas tanker operations.

The course:

Addresses SIRE 2.0 Section 8.4/8.5: Cargo and Ballast System-LPG/LNG; 8.1.Gas (common to all vessels under IGC Code);8.6.2.

### **MSSV-2252 Gas tanker Security Management**

#### **Course Description**

This course addresses the critical aspects of security management specific to gas tankers, with a focus on safeguarding LNG operations. Participants will explore the principles of LNG security, compliance with the International Ship and Port Facility Security (ISPS) Code, and the potential scenarios involving terrorism. The course emphasizes proactive measures, regulatory adherence, and situational awareness to ensure the security of gas tanker operations in a dynamic and high-risk environment.

The course:

Addresses SIRE 2.0 Section 7. Maritime Security; 7.2. Ship Hardening and access control

### **MSSV-2253 Gas tanker Hazards and Controls**

#### **Course Description**

This course provides a detailed examination of the hazards associated with gas tanker operations and the measures to control them. Topics include the types of gas tankers, cargoes carried, and identification of hazardous areas onboard. Participants will explore the specific risks of LNG cargo operations, the characteristics of LNG fires, and techniques for mitigating fire hazards while maintaining structural integrity. The course equips maritime professionals with the knowledge and tools to manage hazards effectively and ensure safe gas tanker operations.

The course:

Addresses SIRE 2.0 Section 8.1/8.3: Cargo and Ballast System :8.6. Gas (common to all vessels under IGC Code); 8.6.8 to 8.6.11.

### **MSSV-2254 Risk Management in Gas Carriers**

#### **Course Description**

This course focuses on the principles and application of risk management specific to gas carrier operations. Participants will learn strategies for accident prevention, risk identification, grading, assessment, and control. The course introduces Bow-Tie Analysis as a key tool for visualizing and managing risks, including its application in SIRE assessments and practical examples. Topics also include resilience in risk management and tailored approaches for gas carriers, equipping professionals to mitigate risks and enhance safety in complex operational environments.

Addresses SIRE 2.0 Section 8.1/8.3: Cargo and Ballast System :8.6. Gas (common to all vessels under IGC Code);8.6.12;8.6.13.

The course:

Addresses SIRE 2.0 Section 8.1/8.3: Cargo and Ballast System: 8.5. LNG; 8.5.4; 8.6.2; 8.6.3.

### **MSSV-2255A LNG Bunkering: Procedures and Best Practices**

#### **Course Description**

This course provides a comprehensive understanding of LNG bunkering operations, focusing on challenges in regulation, standardization, and safety. Participants will explore methods to overcome these challenges, compare bunkering options, and learn about system components, including emergency release and shutdown systems (ESDS). The course also covers the LNG bunkering procedure, equipping maritime professionals with the knowledge to conduct safe and efficient LNG refueling operations.

The course:

Addresses SIRE 2.0 Section 8.1/8.3: Cargo and Ballast System; 8.5. LNG;8.5.1

### **MSSV-2255B LNG Bunkering- Risk Management and Custody Transfer**

#### **Course Description**

This course focuses on the critical aspects of risk management and custody transfer during LNG bunkering. Participants will learn about considerations such as tank temperatures and densities, identify potential hazards, and implement effective risk management strategies. The course also covers custody transfer systems, ensuring accurate measurement and safe handling of LNG during bunkering operations.

The course:

Addresses SIRE 2.0 Section 8.1/8.3: Cargo and Ballast System; 8.5. LNG;8.5.1

### **MSSV-2256 Cargo Tanks, Pumping Systems and Pipelines on Gas Carriers**

#### **Course Description**

This course provides an in-depth understanding of the systems and equipment critical to cargo handling on gas carriers. Participants will explore the types of liquefied gas tankers and their cargo containment systems, including the operation and safety features of relief valves. Key topics include LNG cargo pipelines, expansion joints, manifold preparation, and vapor return arrangements. The course also examines the design and operation of cargo pumps, submerged LNG pumps, and LNG pumping systems, ensuring efficient and safe cargo management on gas carriers.

The course:

Addresses SIRE 2.0 Section: 8.6 Gas (common to all vessels under IGC Code);8.6.3;8.6.4;8.6.5; 8.6.19.

### **MSSV-2258-Equipment and Systems for Efficient Gas Tanker Cargo Handling**

#### **Course Description**

This course covers the equipment and systems critical for handling liquefied gas cargoes on gas tankers, including compressors, heaters, vaporizers, and inert gas

systems. Participants will learn about operational principles, design, maintenance, reliquefaction systems, and cofferdam heating, ensuring safe and efficient cargo handling. Designed for maritime professionals, it emphasizes technical expertise, safety, and environmental compliance in gas tanker operations.

The course:

Addresses SIRE 2.0 Section: 8.6 Gas (common to all vessels under IGC Code); 8.6.4 to 8.6.9.

### **MSSV-2263 Comprehensive Guide to Firefighting on Gas Tankers**

#### **Course Description**

This course focuses on the specialized knowledge and techniques required to combat fires onboard gas tankers. Designed for maritime professionals responsible for safety and emergency response, it covers the unique fire hazards associated with liquefied gases, fire detection systems, and the various firefighting methods and equipment available on gas carriers, such as LNG ships.

The course:

Addresses SIRE 2.0 Section 5. Safety Management; 5.1. Emergency Response Plans and Drills; 5.1.2.

### **SIRE Chapter 09: Mooring and Anchoring**

#### **MSSV-2301- Mooring Equipment and their Upkeep**

##### **Course Description**

This course offers a detailed overview of mooring and anchoring equipment, focusing on their operation, maintenance, and upkeep. Topics include windlass and mooring winch hydraulic circuits, anchors, cables, and cable marking systems. Participants will gain essential knowledge to ensure the safe and efficient handling of mooring operations while maintaining the reliability and longevity of critical equipment used in anchoring and mooring practices.

The Course:

Addresses SIRE 2.0 Section 9. Mooring and Anchoring; 9.1. Mooring Equipment Management; 9.1.1 to 9.1.4.

#### **MSSV-2302: Anchoring Operations and Challenges**

##### **Course Description**

This course provides a comprehensive guide to anchoring operations, covering approaches to anchorage, anchoring procedures, and essential communication terms. Participants will learn the steps for letting go anchor, managing challenges like dragging anchor, and ensuring safe and efficient operations. Designed for maritime professionals, the course equips participants with practical knowledge to handle anchoring operations effectively and address common challenges with confidence.

The Course:

Addresses SIRE 2.0 Section 9. Mooring and Anchoring; 9.1. Mooring and Anchoring Procedures; 9.3.1. 9.4-Mooring and Anchoring Team Management; 9.4.1 and 9.4.2

### **MSSV-2303- Ship Mooring and Berthing Operations**

#### **Course Description**

This course provides an in-depth understanding of ship mooring and berthing operations, including single-point mooring, mooring lines, and procedures. It covers safety measures to prevent accidents, mooring to buoys or berths, and the impact of wind, tides, and currents on berthing maneuvers. Participants will also explore the use of marine fenders and tug assistance during berthing, equipping them with the knowledge to ensure safe and efficient mooring and berthing practices.

The Course:

Addresses SIRE 2.0 Section 9. Mooring and Anchoring; 9.1. Mooring and Anchoring Procedures; 9.3.1. 9.4-Mooring and Anchoring Team Management; 9.4.1 and 9.4.2

### **SIRE Chapter 10: Machinery Spaces**

#### **MSSV-2401 Shipboard Flow Measurement: Tools and Techniques**

##### **Course Description**

This course introduces the principles and technologies involved in flow measurement, from mechanical devices like rotameters and orifice flow meters to advanced electronic systems such as electromagnetic and ultrasonic flow meters. Participants will learn about the applications of these technologies in maritime operations and how to perform pressure and temperature corrections for accurate measurements.

The Course:

Addresses SIRE 2.0 Section 10. Machinery Spaces; 10.4. Planned Maintenance Systems; 10.4.1.

#### **MSSV-2402 Shipboard Valves**

##### **Course Description**

This course provides an overview of the various types of valves used in shipboard systems. Participants will explore the design and functionality of gate, globe, ball, and butterfly valves, as well as the different types of check valves. The course equips maritime professionals with the knowledge to operate and maintain these critical components, ensuring efficient and safe ship operations.

The Course:

Addresses SIRE 2.0 Section 10. Machinery Spaces; 10.4. Planned Maintenance Systems; 10.4.1.

#### **MSSV-2403 Shipboard Valve Maintenance**

##### **Course Description**

This course focuses on the maintenance practices required to ensure the reliable operation of shipboard valves. Participants will learn about routine maintenance procedures for various valve types, including globe, gate, storm, and butterfly valves, as

well as specific considerations for seaside valves. This training equips maritime professionals with the skills to maintain valve functionality and prolong the lifespan of critical shipboard components.

The Course:

Addresses SIRE 2.0 Section 10. Machinery Spaces; 10.4. Planned Maintenance Systems; 10.4.1.

### **MSSV-2404 Shipboard Piping Systems**

#### **Course Description**

This course provides an in-depth understanding of shipboard piping systems and their critical functions. Topics include bilge, ballast, and fire main systems, as well as hydrants, hoses, and the use of international shore coupling. Participants will also explore fuel oil bunkering systems, steam distribution lines, and liquid cargo pipelines. This course ensures maritime professionals are equipped with the knowledge to operate and maintain these essential systems effectively and safely.

The Course:

Addresses SIRE 2.0 Section 10. Machinery Spaces; 10.4. Planned Maintenance Systems; 10.4.1.

### **MSSV-2405 Plate and Tubular Heat Exchangers: Operation and Maintenance**

#### **Course Description**

This course offers an in-depth understanding of plate and tubular heat exchangers, focusing on their design, operation, and maintenance. Participants will explore the principles behind shell-and-tube and plate-type exchangers, their applications onboard, and selection criteria for optimal performance. The course also covers maintenance techniques for plate exchangers and the use of thermal oil heating, equipping professionals with the knowledge to ensure efficient and reliable heat transfer systems.

The Course:

Addresses SIRE 2.0 Section 10. Machinery Spaces; 10.4. Planned Maintenance Systems; 10.4.1.

### **MSSV-2407 Pumping Theory and Characteristics**

#### **Course Description**

This course provides foundational knowledge of fluid mechanics and the principles of pumping systems. Participants will explore pump classifications, system characteristics, and the operation of centrifugal and positive displacement pumps, including gear and other types. The course also covers fluid motion, energy equations, and the unique features of different pump types, equipping maritime professionals with the skills to understand and manage shipboard pumping systems efficiently.

The Course:

Addresses SIRE 2.0 Section 10. Machinery Spaces; 10.2. Machinery Status; 10.2.3.

## **MSSV-2408 Bilge and Ballast System Operations**

### **Course Description**

This course provides an overview of bilge and ballast system operations onboard ships. Participants will explore ballasting and deballasting systems, the use and maintenance of ballast water record books, and pump arrangements for ballast and bilge systems. The course also covers ballast water management practices and the functionality of the bilge system, ensuring compliance with regulations and efficient ship operations.

The Course:

Addresses SIRE 2.0 Section 10. Machinery Spaces; 10.2. Machinery Status; 10.2.4.

## **MSSV-2409 Filters and Strainers for the pumping systems**

### **Course Description**

This course focuses on the critical role of filters and strainers in maintaining efficient pumping systems onboard ships. Participants will learn filtering theory, filtration mechanisms, and various filter types and media. Topics include filter failure modes, sea chest filters, hydraulic system filters and strainers. The course also covers the marine growth prevention system and operating principles of different filter types, ensuring effective maintenance and operational reliability of shipboard systems.

The Course:

Addresses SIRE 2.0 Section 10. Machinery Spaces; 10.2. Machinery Status; 10.2.4.

## **MSSV-2410 Cargo Pumps on Oil and Chemical Tankers**

### **Course Description**

This course provides detailed insights into the operation and maintenance of cargo pumps and related systems on oil and chemical tankers. Topics include cargo pumps, tank cargo pipelines, pump room piping, and stripping systems. Participants will also explore the use of segregated ballast and slop tanks, as well as procedures for tank cleaning and crude oil washing, ensuring efficient and safe cargo handling operations in compliance with industry standards.

The Course:

Addresses SIRE 2.0 Section 8.3. Oil and Chemical. 8.99. All types; 8.99.1.

## **MSSV-2411 Reciprocating and Centrifugal Pumps**

### **Course Description**

This course explores the principles and operation of reciprocating and centrifugal pumps commonly used onboard ships. Participants will gain insights into the functionality of reciprocating pumps, Wilden pumps, centrifugal pumps, and propeller pumps. The course equips maritime professionals with the knowledge to select, operate, and maintain these critical pumping systems for efficient shipboard operations.

The Course:

Addresses SIRE 2.0 Section 10. Machinery Spaces; 10.2. Machinery Status; 10.2.3.



## **MSSV-2412 Rotary Positive Displacement Pumps**

### **Course Description**

This course provides an in-depth understanding of rotary positive displacement pumps and their operational principles. Topics include gear pumps, scroll pumps, lobe pumps, screw pumps, and vane pumps, with a focus on unbalanced vane pump designs. Participants will learn about the functionality and applications of these pump types, ensuring effective operation and maintenance of shipboard pumping systems.

The Course:

Addresses SIRE 2.0 Section 10. Machinery Spaces; 10.2. Machinery Status; 10.2.3.

## **MSSV-2413 Hydraulic Pumps**

### **Course Description**

This course provides an overview of hydraulic pumps and their applications in shipboard systems. Participants will explore various types of piston pumps, including axial and radial piston designs, and learn about the criteria for pump selection. The course also addresses common operating problems, equipping maritime professionals with the knowledge to troubleshoot and maintain hydraulic pumps effectively for reliable performance.

The Course:

Addresses SIRE 2.0 Section 10. Machinery Spaces; 10.1. Engineering Procedures; 10.1.2; 10.1.3.

## **MSSV-2414 Basic Control Engineering Theory**

### **Course Description**

This course introduces foundational concepts of control engineering, focusing on various control systems used onboard ships. Participants will explore pneumatic, hydraulic, electric, and electronic control systems, including advanced systems like PLC, DCS, and SCADA. The course covers key control techniques such as split range, cascade, ratio, position, and speed control, equipping maritime professionals with the knowledge to implement and manage effective control strategies for shipboard operations.

The Course:

Addresses SIRE 2.0 Section 10. Machinery Spaces; 10.1. Engineering Procedures; 10.1.2; 10.1.3.

## **MSSV-2415 Shipboard Alarms and Control Systems**

### **Course Description**

This course provides a comprehensive overview of shipboard automation, focusing on alarm and control systems essential for safe and efficient operations. Participants will explore alarm circuits, fire alarm and detection systems, and annunciators, along with system layout and testing procedures. The course also covers alarms and control symbols, sensors, and data transfer in electronic control systems, ensuring a thorough understanding of modern automation and control engineering onboard ships.

The Course:

Addresses SIRE 2.0 Section 10. Machinery Spaces; 10.1. Engineering Procedures;10.1.2; 10.1.3.;10.1.5. 10.7. Fire Protection Measures; 10.7.4.

### **MSSV-2416 Process Control Systems and Controller Actions**

#### **Course Description**

This course delves into process control systems and the various controller actions used in shipboard operations. Topics include practical control techniques such as two-step on-off control, proportional control, and their limitations. Participants will explore advanced control strategies, including proportional-integral (PI), proportional-derivative (PD), and proportional-integral-derivative (PID) controllers, with applications in pneumatic systems. The course ensures a solid understanding of control dynamics for efficient process management.

The Course:

Addresses SIRE 2.0 Section 10. Machinery Spaces; 10.1. Engineering Procedures;10.1.2; 10.1.3.;10.1.5.

### **MSSV-2417 Automation and Control Engineering Principles**

#### **Course Description**

This course introduces the fundamental principles of automation and control engineering, focusing on shipboard applications. Participants will learn about the basics of automation, closed-loop control systems, and their operational dynamics. The course covers the use of block diagrams in automatic control and explores the classification of various control systems. This training equips maritime professionals with essential knowledge for implementing and managing automated systems efficiently.

The Course:

Addresses SIRE 2.0 Section 10. Machinery Spaces; 10.1. Engineering Procedures;10.1.2; 10.1.3.;10.1.5.

### **MSSV-2418 Advanced Process and Kinetic Control**

#### **Course Description**

This course explores advanced concepts in process and kinetic control systems used in shipboard operations. Participants will learn about gain, stacked type controllers, and the basics and tuning of PID controllers. Topics include cascade and split range control, along with practical applications in temperature, level, and pressure control systems. The course also addresses kinetic control, equipping professionals with the skills to manage complex control systems for optimized performance.

The Course:

Addresses SIRE 2.0 Section 10. Machinery Spaces; 10.1. Engineering Procedures;10.1.2; 10.1.3.;10.1.5.

### **MSSV-2419 Major Shipboard Control Systems**

## **Course Description**

This course provides an in-depth understanding of the critical control systems used onboard ships. Participants will explore automatic control processes and typical systems, including bridge control, main engine maneuvering, and cargo control room systems. Topics cover steering gear systems, main engine cooling and scavenge air control, starting air control, and advancements in main engine control technology. This training ensures proficiency in managing and maintaining essential shipboard control systems for safe and efficient operations.

The Course:

Addresses SIRE 2.0 Section 10. Machinery Spaces; 10.1. Engineering Procedures;10.1.2; 10.1.3.;10.1.5. 10.7. Fire Protection Measures; 10.7.4.

## **MSSV-2420 Shipboard monitoring and control systems**

### **Course Description**

This course covers the essential monitoring and control systems used onboard ships to ensure safety and efficiency. Topics include oil mist detectors, salinity indicators, water purity monitoring, and oily water separators. Participants will explore the operation of oil content monitors, viscosity sensors, torque measurement with proximity sensors, and ultrasonic flow meters. The course also delves into mechanical and electronic governors and refrigeration systems, providing comprehensive knowledge of critical shipboard systems.

The Course:

Addresses SIRE 2.0 Section 10. Machinery Spaces; 10.1. Engineering Procedures;10.1.2; 10.1.3.;10.1.5. 10.7. Fire Protection Measures; 10.7.4.

## **MSSV-2421 Boiler Automation and Control Systems**

### **Course Description**

This course focuses on the automation and control systems used in marine boilers, emphasizing safety and efficiency. Topics include auxiliary boiler safety devices, fuel/air ratio control, and automatic combustion control (ACC) for auxiliary steam boilers. Participants will explore single and multi-element control systems, boiler level control systems, and their practical applications. This training equips maritime professionals with the knowledge to manage and maintain automated boiler systems effectively.

The Course:

Addresses SIRE 2.0 Section 10. Machinery Spaces; 10.1. Engineering Procedures;10.1.2; 10.1.3.;10.1.5. 10.7. Fire Protection Measures; 10.7.1.

## **MSSV-2422 Shipboard Hydraulic Control Systems**

### **Course Description**

This course provides a comprehensive understanding of hydraulic control systems onboard ships, focusing on their purpose and key components. Topics include energy, pressure, and torque dynamics in hydraulic circuits, remote-controlled valve operation, and applications in deck machinery and engine rooms. Participants will explore

hydraulic systems for oil lubrication, bow and stern thrusters, windlass, and mooring winches, equipping them with the knowledge to operate and maintain these critical systems efficiently.

The Course:

Addresses SIRE 2.0 Section 10. Machinery Spaces; 10.1. Engineering Procedures;10.1.2; 10.1.3.;10.1.5.

### **MSSV-2423 Hydraulic Control Circuit Components**

#### **Course Description**

This course focuses on the fundamental components of hydraulic control circuits used in shipboard operations. Participants will learn about basic hydraulic circuits, symbols for components, and the principles and types of valves, including direction control valves. The course also covers fluid power actuators, with an emphasis on linear actuator types, providing essential knowledge for understanding, operating, and maintaining hydraulic control systems onboard ships.

The Course:

Addresses SIRE 2.0 Section 10. Machinery Spaces; 10.1. Engineering Procedures;10.1.2; 10.1.3.;10.1.5.

### **MSSV-2424 Care of Shipboard Hydraulic Control Systems**

#### **Course Description**

This course provides essential guidance on the maintenance and care of hydraulic control systems onboard ships. Topics include electrohydraulic remote control of cargo, types of hydraulic accumulators, and troubleshooting techniques. Participants will also explore the operation of tubular and plate-type heat exchangers, hydraulic oil care and maintenance, and strategies to prevent contamination, including metal contamination. This training ensures the reliability and longevity of shipboard hydraulic systems.

The Course:

Addresses SIRE 2.0 Section 10. Machinery Spaces; 10.4. Planned Maintenance Systems.10.4.1.

### **MSSV-2425 Maintenance of Hydraulic System Components**

#### **Course Description**

This course focuses on the maintenance and troubleshooting of hydraulic system components onboard ships. Topics include the care of filters, strainers, and portable filtering equipment, as well as piping, tubing fittings, and flanges. Participants will explore the use and maintenance of quick-acting couplings, hoses, and valves, along with cleaning and safety protocols. The course also covers hydraulic system safety, bolt tensioner warnings, and troubleshooting techniques to ensure reliable and safe operation.

The Course:

Addresses SIRE 2.0 Section 10. Machinery Spaces; 10.4. Planned Maintenance Systems.10.4.1.; 10.4.2.

### **MSSV-2426 Efficient Operations and Resource Utilization in the Engine Room** **Course Description**

This course teaches efficient resource management principles in the engine room, with a focus on workload management, prioritization, and planning. Participants will learn to manage fatigue, stress, and team dynamics, while also improving safety awareness through case studies on ballast tank explosions and violation reporting.

The Course:

Addresses SIRE 2.0 Section 10. Machinery Spaces; 10.4. Planned Maintenance Systems.10.4.1.; 10.4.2.

### **MSSV-2427 Final Control Elements- Control Valve and Actuator** **Course Description**

This course explores the essential role of final control elements in process control systems. Topics include the working principles, terms, and types of control valves, along with their flow characteristics and the influence of valve bodies on flow. Participants will gain insights into diaphragm-operated valves, various actuators (pneumatic, direct/reverse-acting, piston, and electro-hydraulic), and electric actuator control valves. The course also covers process flow logic, ensuring a comprehensive understanding of these critical components.

The Course:

Addresses SIRE 2.0 Section 10. Machinery Spaces; 10.4. Planned Maintenance Systems.10.4.1.; 10.4.2.

### **MSSV-2428 The Final Control Element- Valve Positioner** **Course Description**

This course provides an in-depth understanding of valve positioners and their role in enhancing control valve performance. Topics include the advantages and applications of cylindrical, digital, force-balanced, and motion-balanced pneumatic valve positioners. Participants will learn about testing communication and control, managing control valve hysteresis, and the use of wax element and electrically operated valves. This training ensures proficiency in optimizing valve functionality for precise process control.

The Course:

Addresses SIRE 2.0 Section 10. Machinery Spaces; 10.4. Planned Maintenance Systems.10.4.1.; 10.4.2.

### **MSSV-2429 Effective Watchkeeping Practices for Marine Engineers** **Course Description**

This course is designed to provide engineers with the essential skills and knowledge needed for engine room watchkeeping, both in regular and UMS operations. Topics

include watchkeeping procedures, monitoring engine performance, and handling responsibilities during port watchkeeping.

The course:

Addresses SIRE 2.0 Section 10. Machinery Spaces ;10.1.Engineering Procedures;10.1.3.

### **MSSV-2430 Applications of Power Hydraulics on Ships**

#### **Course Description**

This course explores the diverse applications of power hydraulics in ship operations. Topics include shipboard hydraulic systems used for hatch covers, cranes, and watertight doors. Participants will learn about double-acting telescopic cylinder cranes, electro-hydraulic valve control for ballast and cargo, and hydraulic valve remote control systems. The course also covers Ro-Ro vessel doors, controllable pitch propellers, and ship stabilizers, equipping maritime professionals with knowledge for efficient and safe hydraulic operations.

The Course:

Addresses SIRE 2.0 Section 10. Machinery Spaces; 10.4. Planned Maintenance Systems.10.4.1.; 10.4.2.

### **MSSV-2431 Engine application of Hydraulics onboard**

#### **Course Description**

This course focuses on the application of hydraulics in ship engine operations. Topics include camshaft-less Sulzer RT-Flex engines, B-W ME engine FIVA valve operation, and common rail fuel injection systems. Participants will also explore Mitsubishi UEC ECO engines, the use of hydraulic tensioners, deck winch brake testing, and the bearing load method. This training equips maritime professionals with the expertise to manage and maintain hydraulic systems in engine applications efficiently.

The Course:

Addresses SIRE 2.0 Section 10. Machinery Spaces; 10.4. Planned Maintenance Systems.10.4.1.; 10.4.2. 10.7. Fire Protection Measures; 10.7.4.

### **MSSV-2432 Temperature Monitoring Systems Onboard Ships**

#### **Course Description**

This course provides an in-depth understanding of various temperature measuring devices used onboard ships, including mechanical temperature measuring devices, resistance temperature detectors (RTDs), thermistors, and thermocouples. The course also covers infrared temperature sensors, their applications, and the characteristics of different temperature sensors to enhance accuracy and reliability in shipboard operations.

The Course:

Addresses SIRE 2.0 Section 10. Machinery Spaces; 10.4. Planned Maintenance Systems.10.4.1.; 10.4.2.

## **MSSV-2433 Shipboard Pressure Measurement Devices**

### **Course Description**

This course provides a comprehensive overview of pressure measurement devices used onboard ships. Participants will learn about various devices, including Bourdon tube, diaphragm, and bellows gauges, as well as advanced tools like pressure transducers. The course covers different types of transducers, including capacitance-based models, ensuring a thorough understanding of pressure measurement techniques for accurate monitoring and control in shipboard operations.

The Course:

Addresses SIRE 2.0 Section 10. Machinery Spaces; 10.4. Planned Maintenance Systems.10.4.1.; 10.4.2.

## **MSSV-2434 Advanced Pressure Measurement Devices**

### **Course Description**

This course delves into sophisticated pressure measurement technologies used in shipboard systems. Topics include strain gauge-based transducers, bonded and unbonded strain gauges, and the Wheatstone Bridge circuit. Participants will explore piezoelectric, inductive, reluctance, and capacitive pressure sensors, as well as variable capacitance and optical transducers. The course also covers the calibration of pressure gauges, ensuring precise and reliable pressure monitoring for advanced maritime operations.

The Course:

Addresses SIRE 2.0 Section 10. Machinery Spaces; 10.4. Planned Maintenance Systems.10.4.1.; 10.4.2.

## **MSSV-2435 Level Measurement and Monitoring Devices for Ships**

### **Course Description**

This course provides detailed knowledge of level measurement systems used on ships, such as conductivity probe methods, gauge glasses, and float-type level indicators. The course also examines the use of ultrasonic liquid level sensors and radar systems for precise monitoring of liquid levels in cargo tanks and other critical areas.

The Course:

Addresses SIRE 2.0 Section 10. Machinery Spaces; 10.4. Planned Maintenance Systems.10.4.1.; 10.4.2.

## **MSSV-2436 Shipboard Instrumentation – Sensors and Transducers**

### **Course Description**

This course provides an in-depth understanding of instrumentation used onboard ships, focusing on sensors and transducers. Topics include the classification and characteristics of measuring instruments, types of sensors and transducers, and their specifications. Participants will explore technologies like LVDT, variable capacitance, permanent magnet transducers, torque sensors, and dissolved oxygen sensors,

equipping them with knowledge to ensure accurate monitoring and efficient ship operations.

The Course:

Addresses SIRE 2.0 Section 10. Machinery Spaces; 10.4. Planned Maintenance Systems.10.4.1.; 10.4.2.

### **MSSV-2437 Shipboard Instrumentation – Flow, Speed and Torque Measurement Course Description**

This course explores the advanced instrumentation techniques used onboard ships for measuring flow, speed, and torque. Topics include electromagnetic, ultrasonic, and vortex flowmeters, as well as RPM measurement using stroboscopic tachometers. Participants will gain insights into speed measurement methods and torque monitoring, including the use of proximity sensors. This training ensures precision in monitoring critical parameters for safe and efficient maritime operations.

The Course:

Addresses SIRE 2.0 Section 10. Machinery Spaces; 10.4. Planned Maintenance Systems.10.4.1.; 10.4.2.

### **MSSV-2438 Shipboard Instrumentation – Monitors and Detectors Course Description**

This course provides detailed knowledge of monitors and detectors essential for shipboard safety and efficiency. Participants will learn about devices measuring density, viscosity, and humidity, including specialized sensors like dew cell, Dunmore cell, and Pope cell hygrometers. Topics include heat and smoke detectors, flame radiation detectors, crankcase oil mist detectors, and oil-in-water monitors. The course also covers water purity monitoring, equipping maritime professionals with expertise in maintaining operational safety and compliance.

The Course:

Addresses SIRE 2.0 Section 10. Machinery Spaces; 10.4. Planned Maintenance Systems.10.4.1.; 10.4.2.

### **MSSV-2440 Comprehensive Guide to Ship Energy Management Course Description**

This course focuses on the techniques and strategies for managing energy efficiently onboard ships. The course covers various energy efficiency measures, such as trim optimization, ballast management, hull cleaning, and propeller maintenance. It also explores fuel management, including fuel storage, transfer, and contamination testing, as well as the use of variable frequency drives (VFDs) to control motor speeds. Additionally, the course highlights the importance of waste heat recovery systems and other innovative methods to enhance energy efficiency on ships.

The Course:



Addresses SIRE 2.0 Section 10. Machinery Spaces; 10.1.Engineering Procedures;10.1.1.

### **MSSV-2441 Efficient Propulsion for Ship Operations**

#### **Course Description**

This course explores advanced propulsion systems and components critical for efficient ship operations. Participants will learn about propellers, transmission systems, and stern tube arrangements, including oil- and seawater-lubricated bearings. Topics include steerable propeller systems, azimuthing propulsion drives, and the Voith-Schneider system, highlighting its advantages for tugs. The course also covers the use of bow thrusters, equipping maritime professionals with knowledge to enhance vessel maneuverability and efficiency.

The Course:

Addresses SIRE 2.0 Section 10. Machinery Spaces; 10.1.Engineering Procedures;10.1.1;10.1.2.

### **MSSV-2442 Propulsion system operation and maintenance**

#### **Course Description**

This course provides comprehensive guidance on the operation and upkeep of ship propulsion systems. Topics include various types of propellers, control pitch propellers, and managing propeller cavitation. Participants will learn precautions for propeller care, handling propeller drop, fitting, and removal. The course also covers tail shaft removal, inspection, repair, and survey procedures, ensuring safe and efficient propulsion system maintenance for optimal vessel performance.

The Course:

Addresses SIRE 2.0 Section 10. Machinery Spaces; 10.1. Engineering Procedures;10.1.1;10.1.2.10.3.3; 10.3.4. 10.4. Planned Maintenance Systems;10.4.1

### **MSSV-2443 Steering Gear Systems on ships**

#### **Course Description**

This course provides an in-depth understanding of steering gear systems and their operation onboard ships. Participants will explore the theory and types of steering, the mechanisms involved, and operational procedures. Topics include two-ram and four-ram electro-hydraulic steering gear systems, as well as the rotary vane system and its operational protocols. This training equips maritime professionals with the knowledge to operate and maintain steering gear systems safely and efficiently.

The Course:

Addresses SIRE 2.0 Section 10. Machinery Spaces;10.1. Engineering Procedures;10.1.2

### **MSSV-2444 Safe operation of the Steering and Rudder Assembly**

#### **Course Description**

This course focuses on the safe and efficient operation of steering and rudder systems onboard ships. Topics include procedures for activating steering gear, rudder and tiller details, rudder movement, and hunting gear. Participants will explore safety devices, rudder limit switches, turning rate limiters, and mode change procedures between manual and auto-pilot. The course also covers emergency steering, auto-pilot operation, steering control system testing, and rudder types, ensuring optimal performance and safety.

The Course:

Addresses SIRE 2.0 Section 10. Machinery Spaces;10.1. Engineering Procedures;10.1.2

### **MSSV-2445 Air Compressor Systems Onboard**

#### **Course Description**

Participants will learn the principles behind air compressors and compressed air systems, including the components and operations of multi-stage compressors. The course covers safety devices, lubrication systems, and maintenance of compressed air systems, ensuring engineers have the technical knowledge to operate and maintain these essential systems.

The Course:

Addresses SIRE 2.0 Section 10. Machinery Spaces;10.2. Machinery Status;10.2.5.

### **MSSV-2450 Main Engine Operations and Watchkeeping**

#### **Course Description**

This course provides essential knowledge on main engine operations and effective watchkeeping practices. Topics include the fundamentals of two-stroke and four-stroke engine cycles, detailed insights into two-stroke engines, and the responsibilities of watchkeeping in the engine room. Participants will also explore the basics of Unattended Machinery Space (UMS) operations and the procedures for managing main engines in UMS mode, ensuring safe and efficient engine performance.

The Course:

Addresses SIRE 2.0; 10. Machinery Spaces; 10.1. Engineering Procedures; 10.1.3

### **SIRE Chapter 11: General Appearance and Conditions**

### **MSSV-2326 Comprehensive Guide to Corrosion Mitigation Onboard**

#### **Course Description**

This course provides a comprehensive overview of corrosion, including its causes and various types. Participants will learn about corrosion prevention techniques, such as cathodic protection, the use of sacrificial anodes, and impressed current systems. The course also covers underwater hull corrosion, painting for corrosion prevention, and the role of shaft earthing systems.

The Course:

Addresses SIRE 2.0 Section 2. Certification and Documentation; 2.3. Structural Assessment; 2.3.1; 2.3.2.

### **MSSV-2327 Hull Fouling: Causes, Impacts, and Preventive Measures**

#### **Course Description**

Hull fouling is a significant issue for ships, leading to increased drag and fuel consumption. This course covers the stages of hull fouling, the impact of invasive species, and the various antifouling coatings available. Participants will learn about surface preparation, marine growth prevention systems, and the importance of maintaining a smooth hull surface for optimal vessel performance.

The Course:

Addresses SIRE 2.0 Section 2. Certification and Documentation; 2.3. Structural Assessment; 2.3.3.

### **MSSV-2328 Basics of Ship Stability**

#### **Course Description**

This course introduces the fundamental concepts of ship stability, providing a foundation for understanding how ships float and why they sometimes sink. Topics include the principal dimensions of a vessel, principles of flotation, and key stability terms. Participants will explore the concepts of the center of gravity, its role in a ship's stability, and the effects of shifts in the center of gravity. Real-world examples of ship instability are analyzed to highlight the importance of maintaining proper stability in maritime operations.

The Course:

Addresses SIRE 2.0 Section 8. Cargo and Ballast Systems; 8.99- All types; 8.99.7.

### **MSSV-2329 Statical Stability Explained**

#### **Course Description**

This course delves into the principles of statical stability, focusing on critical factors that influence a ship's balance and performance. Topics include the transverse metacenter, list, and the derivation of the formula for calculating list, with practical examples. Participants will also explore the free surface effect, the angle of loll, and the GZ curve. Additional modules cover trim and trim calculations, providing a comprehensive understanding of how these elements interact to ensure a vessel's stability and safety.

The Course:

Addresses SIRE 2.0 Section 8. Cargo and Ballast Systems; 8.99- All types; 8.99.7.

### **SIRE Chapter 12: Ice**

#### **MSSV 2351: Ice Characteristics and Areas with Different Types of Ice**

##### **Course Description**

This course explores the physical and environmental dynamics of ice, equipping students with a comprehensive understanding of ice physics, terminology, and the processes of ice formation, growth, ageing, and melting. It delves into ice

concentrations, pressure, and the unique friction properties of snow-covered ice. Regional ice regimes are analyzed, with a focus on the significant differences between Arctic and Antarctic conditions. Students learn to interpret ice imagery, identify optical phenomena like ice blink and water sky, and understand the movement of icebergs and pack ice under the influence of tides, currents, wind, and weather.

The Course:

Addresses SIRE 2.0 Section 12. Ice Operations; 12.1 Ice operations training;12.1.1

### **MSSV-2352: Vessel Performance in Ice and Low Air Temperature**

#### **Course Description**

This course explores vessel performance in ice and low air temperatures, focusing on the challenges of operating in Arctic conditions. Topics include vessel characteristics, ice navigation, spray icing, and the dangers of icing up. Participants will also learn about seasonal sea ice changes, Arctic sea routes, and vessel winterization strategies. Designed for maritime professionals, the course emphasizes safe navigation and efficient vessel operation in extreme cold environments.

The Course:

Addresses SIRE 2.0 Section 12. Ice Operations; 12.6. Ice navigation procedures; 12.6.1

### **MSVS-2353: Ice strengthening and Engineering Requirements for Ships in Polar Waters**

#### **Course Description**

The course equips participants with essential knowledge and skills to navigate the unique challenges of operating ships in polar regions. It focuses on ice strengthening requirements, the limitations of ice-class standards, and the adaptation of equipment and machinery to withstand extreme conditions. Participants will explore engineering solutions for safe operations in ice, learn methods for monitoring ice pressure on hulls, and understand the implications of the Polar Code for design and compliance. This course is ideal for maritime professionals seeking to enhance operational safety and efficiency in ice-covered waters.

The Course:

Addresses SIRE 2.0: Chapter 12: Ice Operation; Compliance Code: 12.1.1- 12.1.5; Sub-zero machinery operation procedures: 12.3.1;

### **MSSV 2354: Crew Preparation, Working Conditions, and Safety**

#### **Course Description**

This course emphasizes crew readiness for operations in extremely cold environments, focusing on search and rescue responsibilities, contingency planning, and safe working procedures. It covers medical first aid for cold-related injuries like frostbite and hypothermia, the proper use of survival equipment, and techniques for surviving in cold water. Students learn about the impact of cold on vessel stability, including icing effects, factors influencing ice accretion, and mitigating fatigue among crew members. Practical

safety and survival measures are highlighted to prepare crew for challenges posed by icy and freezing conditions.

The Course:

Addresses SIRE 2.0 Section 12. Ice Operations; Sub-zero LSA & FFA procedures; 12.2.1;

### **SIRE-Value-Added Courses**

#### **MSSV-2501 Introduction to Marine Propulsion Engines**

##### **Course Description**

This course offers a comprehensive introduction to the various propulsion systems used in the maritime industry. Participants will explore steam and gas turbine propulsion, along with conventional steam propulsion systems. The course covers diesel engine terminologies for both two-stroke and four-stroke cycles, providing a foundation for understanding engine operations. Additional topics include marine gas turbines and the Combined Gas and Steam (COGES) system, equipping maritime professionals with essential knowledge of modern propulsion technologies.

The Course:

Addresses SIRE 2.0; 10. Machinery Spaces

#### **MSSV-2502 Alternative Energy for Ship Propulsion**

##### **Course Description**

This course explores innovative and sustainable energy solutions for ship propulsion, focusing on reducing environmental impact. Participants will learn about nuclear-fueled steam propulsion, the concept of electrical propulsion, and the integration of renewable energy sources onboard. Topics include the use of biofuels, ammonia (NH<sub>3</sub>), and renewable energy systems such as solar and wind power. The course also examines solar-assisted and wind-solar hybrid solutions, as well as fuel cell propulsion technologies, providing insights into the future of eco-friendly maritime operations.

The Course:

Addresses SIRE 2.0; 10. Machinery Spaces

#### **MSSV-2504 Constructional Design of MDE**

##### **Course Description**

This course provides a comprehensive understanding of the constructional elements of marine diesel engines (MDE). Topics include the structural design, cylinder covers with mountings, and components like cylinder liners, pistons, crossheads, and connecting rods. Participants will explore crankshaft deflection, bearing types (bottom end, main, and thrust), bearing inspection techniques, and chain drive mechanisms. This training equips maritime professionals with the knowledge to ensure engine integrity and operational reliability.

The Course:

Addresses SIRE 2.0; 10. Machinery Spaces

## **MSSV-2505 Air Charging and Advanced Fuel Injection in MDE**

### **Course Description**

This course delves into the critical components and systems for air charging and fuel injection in marine diesel engines (MDE). Topics include the charge air cooler, scavenging, and supercharging processes, as well as the roles of inlet and exhaust valves. Participants will explore the camshaft, advanced camless engine technology (Sulzer RT-Flex type), and common rail fuel injection systems. The course also covers innovations like Mitsubishi UEC ECO engines, enhancing understanding of modern propulsion technologies.

The Course:

Addresses SIRE 2.0; 10. Machinery Spaces

## **MSSV-2506 Marine Steam Boilers**

### **Course Description**

This course offers a detailed exploration of marine steam boiler systems, covering a range of boiler types and their applications. Participants will learn about water and fire tube boilers, low-pressure systems, and specific designs like the Cochran vertical, Swirlyflo Spanner, Clarkson thimble tube, and Sunrod oil-fired boilers. The course also includes insights into advanced systems like Aalborg AQ-series, Mitsubishi, and Osaka boilers, as well as composite boilers, package boilers, and exhaust gas economizers, ensuring a comprehensive understanding of steam generation on ships.

The Course:

Addresses SIRE 2.0; 10. Machinery Spaces

## **MSSV-2507 Boiler Mountings and operating systems**

### **Course Description**

This course provides an in-depth understanding of the essential mountings and operating systems of marine boilers. Topics include steam boiler mountings such as safety valves, main steam stop valves, feed water valves, and water level gauges. Participants will explore soot blowers, feed water systems, and the importance of boiler water treatment. The course also covers safety devices, operational procedures for auxiliary boilers, and forced draft and boiler fan systems, ensuring safe and efficient boiler operations onboard ships.

The Course:

Addresses SIRE 2.0; 10. Machinery Spaces

## **MSSV-2508 Fresh Water Generator**

### **Course Description**

This course provides a comprehensive overview of fresh water generators (FWG) and their role in producing potable water onboard ships. Topics include vacuum evaporators, the principles of operation, and methods such as distillation and reverse osmosis. Participants will learn about different FWG types, including plate-type

generators, and explore operational procedures for both evaporator and reverse osmosis systems. This training ensures a thorough understanding of FWG operation and maintenance for efficient water production.

The Course:

Addresses SIRE 2.0; 10. Machinery Spaces

### **MSSV-2509 Potable Water onboard**

#### **Course Description**

This course focuses on the critical aspects of potable water management onboard ships, emphasizing sanitation and safety. Participants will learn about water testing and treatment procedures, advanced drinking water filtration techniques, and the application of ultraviolet sterilization for ensuring water quality. This training equips maritime professionals with the knowledge to maintain safe and reliable drinking water systems, promoting crew health and compliance with hygiene standards.

The Course:

Addresses SIRE 2.0; 10. Machinery Spaces