

# TRAINING ON SHIP BUILDING



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# ABOUT US

**Welcome to Pertecnica, where knowledge meets expertise! As a leading employee training institute, we specialize in a diverse range of sectors, providing top-notch induction trainings, refresher courses, and elevating skills through our upgradation programs. We take pride in offering mandatory trainings that ensure compliance and safety trainings across various sectors/industries especially in the dynamic sector of Ship Building. At Pertecnica, we are your partners in growth, fostering a culture of continuous learning and development. Join us on a transformative journey.**



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# INDUCTION TRAININGS

## - Ship Building

### Shipyard Orientation and Safety Training:

- **Introduction to Shipyard Operations:** Providing an overview of the shipbuilding process, including design, fabrication, and assembly.
- **Safety Policies and Procedures:** Covering essential safety protocols, including emergency response, personal protective equipment (PPE) usage, and hazard identification.
- **Site-Specific Safety Measures:** Addressing specific safety measures within the shipyard environment, such as confined space entry and fall protection.

### Blueprint Reading and Technical Drawing Interpretation:

- **Understanding Ship Plans:** Training on reading and interpreting ship plans, including hull drawings, electrical schematics, and piping diagrams.
- **Dimensional Tolerances:** Teaching employees how to understand and work within the specified dimensional tolerances outlined in technical drawings.
- **Material Identification:** Identifying materials and components based on technical specifications and drawings.



### **Welding and Fabrication Techniques:**

- **Basic Welding Processes:** Introducing employees to common welding processes used in shipbuilding, such as arc welding and gas welding.
- **Material Preparation:** Training on preparing materials for welding, including surface cleaning, joint preparation, and fit-up.
- **Quality Standards in Welding:** Ensuring adherence to industry standards for weld quality and integrity.

### **Ship Systems and Subsystems Training:**

- **Understanding Ship Systems:** Providing an overview of propulsion systems, electrical systems, plumbing, and other ship subsystems.
- **Integration of Ship Systems:** Training on how different ship systems interact and ensuring proper integration during the shipbuilding process.
- **Testing and Commissioning:** Covering procedures for testing and commissioning ship systems to ensure functionality and safety.

### **Health and Environmental Compliance:**

- **Occupational Health Practices:** Training on maintaining health and wellness in the shipyard, including ergonomic practices and stress management.
- **Environmental Compliance:** Educating employees on environmental regulations and the proper disposal of hazardous materials.
- **Emergency Response Training:** Preparing employees for potential environmental emergencies and spills.



### **Project Management and Coordination:**

- **Introduction to Project Lifecycle:** Providing an overview of shipbuilding project phases, from design and planning to construction and delivery.
- **Communication and Coordination:** Emphasizing the importance of effective communication and collaboration between different teams within the shipyard.
- **Project Documentation:** Training on the creation and maintenance of project documentation, including progress reports and change orders.

### **Quality Assurance and Inspection Protocols:**

- **Quality Control Procedures:** Teaching employees about quality control measures throughout the shipbuilding process to meet industry standards.
- **Inspection Techniques:** Training on inspection methods for welds, materials, and finished ship components.
- **Non-Destructive Testing (NDT):** Introducing employees to NDT techniques such as ultrasonic testing and magnetic particle inspection.

### **Introduction to Naval Architecture:**

- **Basic Naval Architecture Principles:** Providing foundational knowledge of naval architecture concepts, including buoyancy, stability, and hydrodynamics.
- **Ship Design Considerations:** Discussing key considerations in ship design, such as hull form, propulsion, and load distribution.
- **Understanding Classification Societies:** Familiarizing employees with the role of classification societies and their impact on ship design and construction.



# REFRESHER TRAININGS

## - Ship Building

### Advanced Welding Techniques Refresher:

- **Specialized Welding Processes:** Updating employees on advanced welding techniques, such as submerged arc welding or robotic welding.
- **Welding Procedure Qualification:** Refreshing knowledge on procedure qualification, including new industry standards and best practices.
- **Troubleshooting Welding Defects:** Reviewing common welding defects and methods for identification and rectification.

### Innovations in Ship Systems Refresher:

- **Emerging Technologies:** Exploring recent advancements in ship systems, such as automation, digitalization, and smart ship technologies.
- **Energy-Efficient Systems:** Updating employees on the integration of energy-efficient propulsion and power systems in modern shipbuilding.
- **Sustainability Practices:** Discussing eco-friendly ship systems and adherence to environmental regulations.



### Naval Architecture and Design Updates:

- **Advanced Design Software:** Providing a refresher on the latest naval architecture software tools for ship design and analysis.
- **Innovations in Hull Design:** Updating employees on new materials and design approaches for enhanced hull performance.
- **Simulation and Modeling Techniques:** Reviewing simulation tools used in naval architecture for virtual testing and validation.

### Quality Assurance and Control Renewal:

- **Latest Industry Standards:** Ensuring employees are aware of updated quality standards and regulatory requirements in shipbuilding.
- **Integrated Quality Management Systems:** Refreshing knowledge on comprehensive quality management systems for end-to-end process improvement.
- **Risk-Based Inspection:** Training on risk assessment methodologies for effective quality control and inspection planning.

### Health and Safety Refresher:

- **Ergonomics and Injury Prevention:** Updating employees on ergonomic practices to prevent musculoskeletal disorders.
- **Mental Health Awareness:** Introducing or reinforcing mental health awareness programs to support employee well-being.
- **Emergency Response Drills:** Conducting refresher drills for responding to emergencies, including fire safety and evacuation procedures.



### **Advanced Project Management Techniques:**

- **Agile Project Management:** Refreshing knowledge on agile methodologies for adaptive project planning and execution.
- **Effective Communication Strategies:** Reviewing advanced communication techniques for project teams, stakeholders, and clients.
- **Risk Management Updates:** Providing insights into the latest approaches for identifying and mitigating project risks.

### **In-Depth Blueprint Analysis Refresher:**

- **3D Modeling and Virtual Reality:** Introducing employees to advanced technologies in 3D modeling and virtual reality for blueprint analysis.
- **Interdisciplinary Blueprint Coordination:** Refreshing knowledge on coordinating blueprints across various disciplines to ensure seamless integration.
- **Revision Control and Document Management:** Reviewing best practices for document version control and efficient management of design changes.

### **Environmental Compliance and Sustainability Practices:**

- **Carbon Footprint Reduction Strategies:** Updating employees on the latest techniques for reducing the carbon footprint in shipbuilding.
- **Renewable Energy Integration:** Providing insights into the incorporation of renewable energy sources in ship design.
- **Regulatory Compliance Updates:** Ensuring employees are aware of the latest environmental regulations impacting the industry.





# **SKILL UPGRADATION PROGRAMME - Ship Building**

## **Advanced Welding Techniques Program:**

- **Specialized Welding Processes Mastery:** Comprehensive training on advanced welding techniques like submerged arc welding and robotic welding.
- **Welding Procedure Qualification Updates:** In-depth understanding of the latest industry standards and best practices for welding procedure qualification.
- **Defect Analysis and Correction:** Skill development in identifying and rectifying common welding defects through practical exercises.

## **Naval Architecture and Design Enhancement Program:**

- **Advanced Design Software Proficiency:** Hands-on training with cutting-edge naval architecture software tools for ship design and analysis.
- **Innovative Hull Design Concepts:** Skill development in utilizing new materials and design approaches for improved hull performance.
- **Simulation and Modeling Techniques Mastery:** Practical application of simulation tools for virtual testing and validation in naval architecture.



### **Digitalization and Smart Ship Technologies Training:**

- **Automation Systems Mastery:** Skill development in understanding and implementing automation systems in shipbuilding processes.
- **Digital Twin Concepts:** Training on creating and managing digital twins for ships, enhancing design and maintenance efficiency.
- **Integration of Smart Sensors:** Hands-on experience in integrating smart sensors for real-time monitoring and diagnostics in ship systems.

### **Advanced Project Management Certification:**

- **Agile Project Management Training:** Developing expertise in agile methodologies for adaptive project planning and execution.
- **Stakeholder Communication Excellence:** Enhancing communication strategies for effective collaboration with project teams and clients.
- **Risk Management Expertise:** Mastery in identifying, analyzing, and mitigating project risks through advanced risk management techniques.

### **Sustainable Shipbuilding Practices Program:**

- **Eco-Friendly Design Principles:** Training on incorporating sustainable and eco-friendly design principles in shipbuilding.
- **Renewable Energy Integration Techniques:** Skill development in integrating renewable energy sources for greener and more efficient ships.
- **Environmental Compliance Mastery:** Understanding and adhering to the latest environmental regulations impacting shipbuilding.



### **Advanced Materials and Technology Integration Course:**

- **Cutting-edge Materials Application:** Training on the use of advanced materials for improved ship performance and durability.
- **Incorporation of IoT Technologies:** Skill development in integrating Internet of Things (IoT) technologies for data-driven decision-making.
- **Digital Fabrication Techniques:** Hands-on experience in utilizing digital fabrication methods for efficient and precise manufacturing.

### **Interdisciplinary Collaboration Workshop:**

- **Effective Cross-disciplinary Communication:** Training on fostering communication and collaboration between various disciplines involved in shipbuilding.
- **Interdisciplinary Problem-solving Exercises:** Practical sessions to enhance problem-solving skills in a cross-disciplinary environment.
- **Team Building and Collaboration Strategies:** Workshop on building effective teams and strategies for successful interdisciplinary collaboration.

### **Leadership in Shipbuilding Management Program:**

- **Strategic Decision-making Skills:** Developing leadership skills for making strategic decisions that positively impact shipbuilding projects.
- **Conflict Resolution and Team Management:** Training on resolving conflicts and effectively managing teams for optimal project outcomes.
- **Ethical Leadership in Shipbuilding:** Understanding and applying ethical leadership principles in the shipbuilding industry.



# MANDATORY TRAINING

## - Ship Building

### Shipyard Safety Certification:

- **Occupational Safety Standards: Comprehensive training on industry-specific safety standards and regulations applicable to shipyards.**
- **Emergency Response Protocols: Practical exercises to ensure employees are well-versed in responding to emergencies such as fires, spills, and accidents.**
- **Personal Protective Equipment (PPE) Training: Proper usage and maintenance of PPE to minimize workplace hazards.**

### Marine Engineering Basics Course:

- **Introduction to Marine Systems: In-depth understanding of ship propulsion, electrical systems, and auxiliary machinery.**
- **Basic Ship Design Principles: Familiarization with foundational principles of ship design, including hull structures and stability.**
- **Marine Engineering Drawings Interpretation: Training on interpreting and working with engineering drawings specific to marine applications.**



### **Shipyard Operations Compliance Workshop:**

- **Environmental Compliance Training:** Understanding and adhering to environmental regulations governing shipyard operations.
- **Quality Management Systems:** Implementing and maintaining quality management systems to ensure compliance with industry standards.
- **Legal and Regulatory Awareness:** Keeping abreast of legal requirements and regulations related to shipyard operations.

### **Welding and Fabrication Standards Program:**

- **Welding Procedure Qualification:** Training on qualifying welding procedures to meet industry standards and certifications.
- **Metallurgy and Material Selection:** Understanding the properties of different metals and appropriate material selection for shipbuilding.
- **Quality Assurance in Welding:** Ensuring the quality and integrity of welds through inspection and testing.

### **Shipyard Project Management Certification:**

- **Project Planning and Scheduling:** Developing skills in creating and managing project plans, timelines, and schedules.
- **Cost Estimation and Budgeting:** Training on accurate cost estimation and effective budgeting for shipbuilding projects.
- **Risk Assessment and Mitigation Strategies:** Identifying and mitigating project risks to ensure successful project outcomes.



### **Naval Architecture Principles Training:**

- **Hydrodynamics and Stability:** Understanding the principles governing ship stability and hydrodynamics.
- **Ship Design Software Proficiency:** Hands-on training with software tools used in naval architecture for design and analysis.
- **Regulatory Compliance in Design:** Ensuring that ship designs comply with international and local regulations.

### **Advanced Shipbuilding Technology Course:**

- **Digitalization and Automation Techniques:** Training on the integration of digital technologies and automation in shipbuilding processes.
- **Advanced Materials Applications:** Understanding and applying advanced materials for improved ship performance.
- **Smart Ship Technologies:** Familiarization with smart technologies and sensors for enhanced monitoring and maintenance.

### **Interdisciplinary Collaboration and Teamwork Seminar:**

- **Effective Communication Across Disciplines:** Improving communication strategies for effective collaboration between different departments.
- **Team Building Exercises:** Engaging in team-building activities to foster better working relationships.
- **Interdisciplinary Problem-solving Scenarios:** Practical scenarios to enhance problem-solving skills in a collaborative environment.



# SAFETY TRAINING

## - Ship Building

### Shipyard Safety Certification:

- **Hazard Recognition and Assessment:** Training employees to identify and assess various hazards commonly found in shipyards, including electrical, chemical, and physical hazards.
- **Fall Protection Procedures:** Comprehensive instruction on the proper use of fall protection equipment, including harnesses and guardrails, to prevent falls from heights.
- **Confined Space Entry Training:** Understanding the risks associated with confined spaces in shipyards and implementing safe entry procedures, including ventilation and monitoring.

### Maritime Fire Safety Training:

- **Fire Prevention Techniques:** Educating employees on fire prevention measures, such as proper storage of flammable materials and regular equipment inspections.
- **Firefighting Equipment Usage:** Hands-on training in the use of firefighting equipment, including fire extinguishers, hoses, and emergency response procedures.
- **Evacuation Drills:** Conducting regular evacuation drills to ensure all employees are familiar with emergency exit routes and assembly points.



### **Safe Welding and Cutting Practices:**

- **Welding and Cutting Hazards:** Identifying potential hazards related to welding and cutting processes, such as sparks, fumes, and electrical risks.
- **Personal Protective Equipment (PPE):** Ensuring proper selection and use of PPE, including welding helmets, gloves, and flame-resistant clothing.
- **Ventilation and Gas Monitoring:** Implementing effective ventilation systems and gas monitoring procedures to control exposure to hazardous fumes and gases.

### **Material Handling Safety Program:**

- **Proper Lifting Techniques:** Providing training on safe lifting techniques to prevent musculoskeletal injuries among workers involved in material handling.
- **Use of Mechanical Handling Equipment:** Training employees on the safe operation of cranes, forklifts, and other mechanical handling equipment.
- **Storage and Stacking Guidelines:** Ensuring proper storage and stacking practices to prevent injuries related to falling objects.

### **Emergency Response and First Aid Training:**

- **Basic First Aid Skills:** Providing employees with basic first aid skills to respond to injuries or medical emergencies promptly.
- **Emergency Communication Protocols:** Establishing clear communication protocols during emergencies and ensuring employees know how to access emergency services.
- **CPR and AED Training:** Training personnel in cardiopulmonary resuscitation (CPR) and the use of automated external defibrillators (AEDs) for life-saving interventions.





### Electrical Safety Certification:

- **Lockout/Tagout Procedures:** Training on the proper procedures for locking out and tagging out electrical equipment to prevent accidental energization.
- **Electrical Hazard Awareness:** Educating employees about electrical hazards, such as shock and arc flash, and implementing safety measures to mitigate risks.
- **Proper Use of Electrical Tools:** Ensuring that employees use electrical tools and equipment safely and in compliance with industry standards.

### Personal Safety and Protective Equipment (PPE) Training:

- **Proper PPE Selection:** Training employees to select and use the appropriate personal protective equipment based on their tasks and potential hazards.
- **Respiratory Protection:** Instruction on the correct use of respiratory protection, including the proper fitting of masks and the importance of regular equipment checks.
- **Heat Stress Prevention:** Providing guidance on preventing heat-related illnesses, including recognizing symptoms and implementing measures such as hydration and rest breaks.

### Shipyard Ergonomics and Musculoskeletal Safety:

- **Ergonomic Workstation Design:** Teaching employees about proper ergonomic workstation design to prevent musculoskeletal disorders.
- **Manual Handling Techniques:** Providing training on safe manual handling techniques to reduce the risk of strains and sprains.
- **Periodic Ergonomic Assessments:** Conducting regular ergonomic assessments to identify and address potential issues in workstations and processes.

