

Principles of Maritime Science

Exam Information	Description
Exam number TX002 Items 40	The Principles of Maritime Science course is designed to instruct students in the principles of maritime science as outlined by the Code of Federal Regulations (CFR) directly related to the National Maritime Center and the Merchant Mariner Credentialing Program. Students enrolled in this course will identify career opportunities, skills, abilities, tools, certifications, and safety measures for sea based maritime careers. Students will also understand components, systems, equipment, production and safety regulations associated with maritime industries. A baseline understanding of ships and maritime systems is developed to support assessment of the impact, benefit, and risk of decisions involving the design, acquisition, operation, regulation, law enforcement, damage control, maintenance, and salvage of ships and maritime systems. This course will also inform students on the most effective and efficient manners to assure a safe, economically efficient, and environmentally sound maritime system with the intent to lead to advanced coursework in maritime studies in later grades.

Exam Blueprint and Performance Skills

Standard	Percentage of exam score
1. Employability Characteristics	12%
2. Historical Significance and Development	12%
3. Components, Systems, Equipment, Production and Safety	16%
4. Academic Skills	16%
5. Cultural Diversity in the Workplace	12%
6. Leadership Experience	16%
7. Fire Prevention and First Aid	16%

Standard 1 - Employability Characteristics

The student demonstrates the employability characteristics that lead to success in the maritime industry. The student is expected to:

Objective 1 Identify the credential and certification requirements for entry into careers in the maritime industry.

Objective 2 Determine how to make effective decisions, use career information, and manage personal career plans.

Objective 3 Demonstrate the ability to use technological resources in diverse and changing personal, community, and workplace environments.

Objective 4 Create alternative solutions by using critical- and creative-thinking skills.

Objective 5 Research and compile health and safety policies, procedures, regulations, and practices of the maritime industry.

Objective 6 Research and discuss professional, ethical, and legal behavior consistent with applicable laws, regulations, and organizational norms.

Objective 7 Demonstrate effective communication skills and leadership styles.

Standard 2 - Historical Significance and Development

The student understands the historical significance and development of maritime enterprises. The student is expected to:

Objective 1 Describe the history of maritime enterprises in the United States and the Texas Gulf Coast Region.

Objective 2 Appraise historical vessel construction leading to new construction technologies and techniques.

Objective 3 Discuss examples of tools and techniques used for construction and shipbuilding advances by mariners of the past such as the early Greeks, and the Vikings.

Objective 4 Analyze and evaluate past and present commercial maritime shipping routes.

Standard 3 - Components, Systems, Equipment, Production and Safety

The student understands aspects of the components, systems, equipment, production and safety regulations associated with maritime enterprises. The student is expected to:

Objective 1 Identify the major systems and equipment used for cargo handling;

Objective 2 Demonstrate efficiency in movement and stowage of cargo.

Objective 3 Differentiate between among the various categories of hazardous cargo.

Objective 4 Identify, explain, and demonstrate techniques for shipboard damage control.

Objective 5 Describe the equipment and activities associated with shipboard deck safety.

Objective 6 Demonstrate proficient seamanship skills with regard to common industry knot-tying, line-handling, and care and maintenance of equipment.

Standard 4 - Academic Skills

The student explores the academic skills necessary to be successful in maritime enterprises. The student is expected to:

Objective 1 Demonstrate competency in basic office software in order to access the National Oceanic and Atmospheric Administration (NOAA) for mariner databases and electronic charting data systems.

Objective 2 Interpret information from documents related to the maritime industry such as nautical charts, land-based maps, preventative maintenance procedure cards, diagrams, maps, parts catalogs, and service-repair manuals.

Objective 3 Simulate the creation of industry-specific documentation such as bills of lading, work orders, invoices, quotes, notice to mariners, chart up dates, shipboard logs, and reports.

Objective 4 Perform precision measurements to diagnose system components such as fire suppression systems based on maritime industry specifications.

Standard 5 - Cultural Diversity in the Workplace

The student explores concepts related to cultural diversity in the workplace. The student is expected to:

Objective 1 Identify significant similarities and differences in international culture.

Objective 2 Identify and explain the diverse maritime workforce cultures.

Objective 3 Describe maritime challenges and practices that impact other cultures.

Standard 6 - Leadership Experience

The student develops leadership experience as it relates to maritime industries.

The student is expected to:

Objective 1 Plan, propose, conduct, and evaluate maritime industry-based occupational experiences.

Objective 2 Apply proper record-keeping skills as they relate to maritime industry-based occupational experiences.

Objective 3 Demonstrate a customized pollution prevention plan for a ship.

Objective 4 Discuss youth leadership opportunities to create a well-rounded maritime industry-based occupational experience.

Objective 5 Develop a watch quarter and station bill.

Standard 7 - Fire Prevention and First Aid

The student understands the importance of fire prevention, response and first aid on ships. The student is expected to:

Objective 1 Compare and contrast marine and land-based firefighting.

Objective 2 Explain the principles, chemistry, and tetrahedron of fire.

Objective 3 Identify and describe fire prevention best practices.

Objective 4 Identify shipboard fire detection systems.

Objective 5 Create a shipboard firefighting organization plan.

Objective 6 Explain and demonstrate basic first aid such as Cardiopulmonary Resuscitation (CPR) and American Red Cross first responder skills.