



Purpose:

The e-learning module is designed for theoretical training of ratings as able seafarer deck in the part concerning of ship systems.

The ELM is included in the "*Able seaman*" library.

What is an e-learning module?

E-learning module is the electronic textbook on one or more sections. Theoretical materials can be accompanied by drawings, diagrams, photos, animations and videos. There is a test for assessment of knowledge gained at the end of each section.

Contents:

- Definition
- Cargo holds systems
- Ballast systems
- Fire-fighting systems
- Sanitary systems
- Drainage and sewage systems
- Heating, ventilation and air conditioning systems
- Refrigeration systems
- Compressed air and gas exhaust systems
- Auxiliary systems
- Communication, signaling and control systems
- Special ship systems
- Propulsion plant systems
- Navigational equipment and communication aids
- Automation of onboard processes, installations, equipment, ship navigation

Target groups

Deck - Support

Ship types

Generic



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Section 1. Definition

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Ship systems are a complex of specialized pipelines with fittings, apparatuses, instruments and mechanisms designed for ship's operation.

According to their purpose, the systems are divided into:

- ship's general,
- special,
- ship propulsion systems.

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graph TD
    A[Ship systems] --> B[General]
    A --> C[Special]
    A --> D[Propulsion systems]
  
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Section 2. Cargo holds systems

Dewatering system

Water can get into the ship's compartments and spaces in case of an accident, for example, through a hole obtained when the ship collides with floating objects, ice and other ships, as well as when the ship runs aground.

Compared to the bilge system, the dewatering system is designed to remove large amounts of water from the ship's hull, so no special manholes are made and the inlets are located at the double bottom flooring.

Only after sealing the hole in the ship's hull, water can be pumped out of the flooded compartment using special dewatering systems and pumps.

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Section 2. Cargo holds systems

Bilge system

During the operation of the ship, water for various reasons (sweating, seepage through leaks, defrosting of holds), accumulates, which is called bilge water, as well as water that has entered as a result of an accident.

The bilge system is designed for the daily removal of water that accumulates in the lower parts of the hull of the vessel under normal operating conditions.

It consists of a suction pipeline – an inlet and an outlet pipeline.

Inlets have protective grids.

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Section 3. Ballast systems

Section 3. Ballast system

The ballast system is designed to receive and pump out ballast during cargo operations related to improving the seaworthiness of the ship, as well as reducing the forces acting on the ship's hull – shear force and bending moment.

Incorrect stowage of the cargo on the ship can cause or change the list and trim. This is especially the case when cargoes of various weights and quantities are transported.

So, with light cargo, the draft of a fully loaded ship will be less than permissible one.

However, it is not always possible to achieve normal ship's draught by the correct stowage of the transported cargoes, and one has to use ballasting.

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Section 4. Fire-fighting systems

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Fire on ships is one of the most dangerous incidents, so a lot of attention is paid to fire protection. Depending on the type and size, modern ships are equipped with various fire-fighting equipment and systems.

The most widely fire-fighting equipment is presented on passenger ships, as well as on tankers carrying liquid and flammable cargo.

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Test tasks

COMMENT

The ships also have manual water, foam, powder, carbon dioxide fire extinguishers.

Question text:

What type of portable fire extinguishers are available on board?

Choose all the correct answers

- Foam fire extinguishers.
- Water fire extinguishers.
- Powder fire extinguishers.
- Inert gas fire extinguishers.

Attempt: 1 Miss

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