



## Purpose:

The e-learning module is designed for theoretical training of ratings as able seafarer deck in accordance with Chapter II of the STCW Convention in the part concerning of cargo operations.

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:

- Cargo handling equipment
- Safety precautions when working with a cargo device
- Cargo handling gear operation rules
- Cargo operations on open roads
- Equipment used for offshore cargo operations
- Arrangement of watercrafts alongside the ship
- Safety at operations with watercrafts
- Providing cargo operations
- Care of cargo holds
- Tanker cargo equipment

## Target groups

Deck - Support

## Ship types

Generic



## Regulations

### Table A-II/5 STCW Code

Competence:

Contribute to the handling of cargo and stores

Knowledge, understanding and proficiency:

Knowledge of procedures for safe handling, stowage and securing of cargoes and stores, including dangerous, hazardous and harmful substances and liquids.




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Section 1. Cargo handling equipments

The most common is a cargo gear with derricks (or mixed).  
Main elements of such cargo handling gear are:

- masts or cargo posts that serve as support for derricks (on some ships, the frontal bulkhead of the superstructure may be used as a support);
- cargo derricks with rigging and equipment for wiring and fastening the rigging;
- cargo winches;
- cargo spaces (holds and tween decks) with appropriate closing of cargo hatches.



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Section 5. Equipment used for offshore cargo operations

Having walked out the slack of the slings at the moment when the wave begins to go away, the weight of the barge is smoothly transferred to the derrick and the barge is torn off the water by the simultaneous heaving out of gin tackles and topping lift tackles.

To avoid swinging and hitting the barge against the side of the ship, the derrick is slightly moved towards the central line of the ship with the guys, pressing the barge against the side, and then continue lifting.

Having lifted the barge 15-20 cm above the bulkhead, it is turned across the ship with guy lines given to the windlass and winches, and at the same time the derrick is moved to the ship's central line.

To prevent the barge from swinging above the dock of the ship, the guys are kept constantly tight. Having placed the derrick into the central line of the ship and working with gin tackles and topping lift tackles, the barge is installed on keel blocks at the bulkhead or forward.



**Handling diagram at launching (lifting) the self-propelled barge:**


1 – windlass; 2 – heavy lift derrick; 3 – barge; 4 – slings for lifting the barge; 5 – hatch cover; 6 – wooden beams for barge installation; 7 – derrick guys; 8 – cargo winches; 9 – guys for turning the barge.

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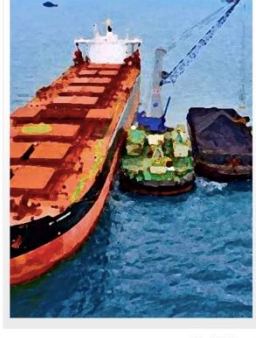
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Section 4. Cargo operations on open roads

 **Section 4. Cargo operations on open roads**

Sea going ships deliver cargo not only to equipped ports, but also to coastal areas where cargo operations have to be performed in open roads (for example, in the Far North, the Far East).



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Section 5. Equipment used for offshore cargo operations

Cargo rigging and cargo handling equipment.

The following cargo rigging is required to perform cargo operations in open roads:

- sling with four hooks for transshipment containers, cargo nets, platforms weighing up to 5 tons;
- cargo net for handling various cargoes;
- common cargo sling for handling goods in bags from the ship to the barge;
- single-rope grab for transshipment coal from the ship into containers installed on a barge;
- sling for slinging cargo by strapping;
- clip hook for handling metal and wooden barrels;
- crane frame designed for hanging load-handling equipment on it and moving cargo from a ship to a



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Section 9. Care of cargo holds

The holds must be clean, dry, and odorless. To do this, you need:

- thoroughly sweep the holds and remove the garbage;
- ventilate cargo spaces; this is especially necessary if previously transported goods harmful to health or dangerous (coal, ore, etc.);
- open all bilges;
- wash the holds with water from hoses, wiping the sides and flooring with brushes (sometimes washing the holds can be replaced by thoroughly sweeping the hold with wet sawdust);
- pump out the water from the bilges, remove the garbage that got into them during washing;
- make sure that the bilge pumping system is ok, then close the bilges with hatch covers, seal the cracks to exclude any possibility of cargo getting into the drains.



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Test tasks

**COMMENT**

To measure the gas composition of cargo tanks, the following instruments must be on board:

- flammable gas indicator, which determines the percentage of gas upstream of it in the too-lean atmosphere of the tank;
- gas analyzer for determining the percentage of hydrocarbon gas in the inerted atmosphere;
- gas analyzer that determines hydrocarbon gas concentrations above 15% by volume in a too-rich atmosphere;
- oxygen analyzer or oxygen meter;
- instrument that determines the concentration of toxic gases within the limits of their toxic impact on humans.

**Test of questions**

Which of the instruments for determining the gas composition in cargo tanks must be on board a tanker?

Select all correct answers.

- UTI
- Flammable gas indicator in too-lean atmosphere.
- Personal breathing apparatus.
- Electronic thermometer indicator.
- Gas analyzer for inerted atmosphere.
- Instrument for measuring concentration of toxic gases.
- Gas analyzer for too-rich atmosphere.

Attempts: 1

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