

# “OIL TANKER CARGO & BALLAST HANDLING SIMULATOR”

## 5-DAY TRAINING COURSE

- **OVERALL AIM**

It is a practical and theoretical Training Course, aimed at helping the participating Masters and Deck Officers to make a more effective contribution to the safe and environmentally-sound oil tanker cargo and ballast handling operations. The Training Course has been designed according to the IMO Model Course 2.06 “*Oil Tanker Cargo and Ballast Handling Simulator*”. The cargo related calculations and the simulator exercises constitute the most important and extensive part of the course.



- **LEARNING OBJECTIVES**

On completing the course, the Trainees, will:

- Have acquired a greater awareness of the proper pre-planning, use of the Ship-Shore Safety Checklist and of the implementation of safe procedures during loading/discharge of crude oil and petroleum products.
- Be able to take precautions to prevent cargo-generated flammability, electrostatic and toxicity hazards.
- Be able to prepare, perform and monitor all cargo operations, including inerting and gas-freeing, tank cleaning operations and crude oil washing.

- Have acquired experience in identifying operational problems and making decisions to solving them.
- Be better familiar with the cargo handling equipment, instrumentation, devices and alarms.

- **FACILITIES**

The Training Course will take place at the ATHINA Maritime Learning and Development Center's K-Sim Liquid Cargo Full-Mission (Class A) and Desk-Top (Class C) Simulators and in the specially designed Loading Instrument – Familiarization Classroom. The Full-Mission Simulator consists of a Centralized Cargo Control Room with all necessary consoles and instrumentation including an Oil Discharge Monitoring and Control System, Overfill Devices, an on-line loading, stress and stability instrument, Inert Gas Panel and a fixed gas detection system. A special compartment simulates the shore loading/discharging terminal station and local deck post stations.



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- DAILY SCHEDULE**

<b>DAY 1</b>	09:30 – 09:45	<b>Introduction, Learning Objectives</b>
	09:45 – 10:00	<b>Pre-Training Questionnaire</b>
	10:00 – 11:00	<b>Properties of Crude Oil and Petroleum Products</b> Nature and origin of Crude Oil Upstream production and Petroleum Products Basics of Distillation and Cracking Processes Physical and Chemical Properties of Hydrocarbons
	11:00 – 11:20	Coffee Break
	11:20 – 12:00	<b>Cargo Tanks Atmosphere – Content – Measurement – Gasses Layering in Tank</b> Flash Point Flammability Composition Diagram Toxicity (TLV, TWA – STEL Definitions) Benzene, Hydrogen Sulfide - Sources and Levels Inert Gas Composition
	12:00 - 13:00	<b>Type of Oil Tankers, Types of Cargo Pumps, Pumps' Operation Theory</b> Steam Turbine and FRAMO Pumps Pumps Performance Curves
	13:00 – 14:00	Lunch Break
	14:00 – 15:00	<b>Familiarization with the LCHS Simulators</b> <b>No. 1 Exercise</b> “Open Hatches – Leaving the Dry Dock”
	15:00 – 15.20	Coffee Break
	15:20 – 16:30	<b>Familiarization with the LCHS Simulators (continued)</b> <b>No. 1 Exercise</b> “Open Hatches – Leaving the Dry Dock”



<b>DAY 2</b>	09:30 – 09:45	Day 1 Recap – Schedule of 2 <sup>nd</sup> Day Training Activities
	09:45 – 11:00	<b>Ship Particulars, Working with Tables and Plans - Calculations</b> Cargo Calculations Parallel Body Calculation DWA Calculation
	11:00 – 11:20	Coffee Break
	11:20 – 13:00	<b>Familiarization with the Loading Instrument</b> Stability Analysis (GZ – Theta Curve) Stability Criteria <b>No.2 Exercise</b> “Loading for Specific Arrival Draft”
	13:00 – 14:00	Lunch Break
	14:00 – 15:00	<b>No.3 (Simulator) Exercise</b> “Initial Inerting – Preparation for Loading Operation”
	15:00 – 15:20	Coffee Break
	15:20 – 16:30	<b>No.4 Exercise</b> “Discharging High Temperature Fuel Oil in Cold Sea”

<b>DAY 3</b>	09:30 – 09:45	Day 2 Recap – Schedule of 3 <sup>rd</sup> Day Training Activities
	09:45 – 11:00	<b>Planning of Fuel Oil Conventional Loading 25%, 50%, 75% 100%</b>
	11:00 – 11:20	Coffee Break
	11:20 – 12:00	Preparation of SQ/03
	12:00 – 13:00	<b>No.5 (Simulator) Exercise</b> “Arrival in Ballast Condition – Commence Loading”
	13:00 – 14:00	Lunch Break
	14:00 – 14:30	<b>Topping Up – Finalization of Loading</b>
	14:30 – 15:00	<b>No.6 (Simulator) Exercise</b> “Loading Operation from 70%”
	15:00 – 15:20	Coffee Break
	15:20 – 16:30	<b>No.6 (Simulator) Exercise (continued)</b> “Loading Operation from 70%”

<b>DAY 4</b>	09:30 – 09:45	Day 3 Recap – Schedule of 4 <sup>th</sup> Day Training Activities
	09:45 – 11:00	<b>Ship – Shore Safety Checklist</b> <b>Laden Passage Tank Pressure Management</b> Means of Venting <b>Arrival to Discharging Port – Cargo Calculations</b>
	11:00 – 11:20	Coffee Break
	11:20 – 12:00	Discharge Rates, Predictions Review of Pumps Performance Diagrams
	12:00 – 13:00	<b>No.7 (Simulator) Exercise</b> “Start Discharging”
	13:00 – 14:00	Lunch Break
	14:00 – 15:00	<b>No.7 (Simulator) Exercise (continued)</b> “Start Discharging”
	15:00 – 15.20	Coffee Break
	15:20 – 16:30	<b>No.8 (Simulator) Exercise</b> “Stripping and COW Exercise”

<b>DAY 5</b>	09:30 – 09:45	Day 4 Recap – Schedule of 5 <sup>th</sup> Day Training Activities
	09:45 – 11:00	<b>Vessel Experience Factor, Gas Freeing Precautions</b> <b>Air Purging</b>
	11:00 – 11:20	Coffee Break
	11:20 – 12:00	<b>Ballast Water Treatment Systems – On Overview to their Operation Principles</b> (Case Studies - ElectroChlorination & Ozone Production)
	12:00 – 13:00	<b>No.9 (Simulator) Exercise</b> “Full Tank Cleaning Operation”
	13:00 – 14:00	Lunch Break
	14:00 – 15:00	<b>Simulator Exercise No.6 (continued)</b> “Full Tank Cleaning Operation”
	15:00 – 15.20	Coffee Break
	15:20 – 16:30	<b>No.10 (Simulator) Exercise</b> “Final Loading with 75000 BBLs Notice”
	16:30 – 17:00	Evaluation of Course – Closing