

Ship Stability & Stress

Familiarisation Course for Container Stowage Planners



*A quality training initiative by
Institute of Maritime Education and Training*

Introduction:

Containerization has changed the way the world perceives shipping. It is now possible to establish complex international supply chains that have minimal shipping costs. Over the past two decades, the demand for cost efficient containerized transportation has seen a continuous increase. In order to answer to this demand, shipping companies have deployed bigger container vessels that nowadays can transport up to 18,000 containers. Container vessels sail from port to port through a fixed route loading and discharging thousands of containers. Before the vessel arrives at port, it is the job of a stowage coordinator to devise a stowage plan.

When creating stowage plans, stowage coordinators must make sure that the vessel is stable and seaworthy, and at the same time arrange the cargo such that the time at port is minimized. These planners need to be trained in taking the right approach to planning cargo stowage for container ships.

At the end of this course, the learner shall be able to:

- Demonstrate knowledge of hydrostatics, transverse stability and longitudinal stability: Archimedes Principle, Law of Floatation, Forces acting on a vessel, centre of gravity and centre of buoyancy
- Understand the effects of draft and density on displacement of the vessel, understanding TPC, FWA.
- Understand Load lines and Freeboard
- Determine transverse stability: Assess initial transverse stability and correction of list
- Understand the effects of loading, discharging and shifting weights on a ship
- Determine trim and final draughts. Ensure that the stress limits for the vessel are not exceeded: Understand the concept of trim, draughts and stress (SF/BM & Sea/Harbour conditions)

- Understand the impact of partial discharge, ballasting and enroute consumptions to the stress and stability of the vessel
- Know the conditions - Stable, Unstable and Neutral equilibrium. Stiff and tender ships and importance of maintaining a minimum GM
- Understand Free Surface Effect and its relevance to the ships stability. Solid and Fluid GM
- Know requirements of IMO Load Line for minimum stability conditions
 - Understand the curve of statical stability

Duration:

4 days

Training Methodology

- Lectures
- Case Studies
- Group Discussion and Exercises

Who should attend?

- Stowage Planners
- Terminal Operators and Planners
- Ship Managers and Support Team Members

For more information on training schedules and course fee, please email us at enquiries@imeta.com.sg