

Ship's Structure Fundamentals

Delivery Method: eLearning || Duration: 3 hours || Course Fee: 380 €

Category: Naval Architecture & Marine Engineering

Available languages: English

Certificate

On completion of the training program, the student will be awarded:

- A Certificate of **Ship's Structure Fundamentals**, issued by Bureau Veritas Solutions Marine & Offshore.

The Certificate of **Ship's Structure Fundamentals** is obtained after completing the course and passing the online test.

Presentation

This training course describes the various elements of the ship's structure, the loads acting on the structure and the required strength of the ship's structure to sustain such loads.

Who the course is for

The course **Ship's Structure Fundamentals** is aimed at anyone interested in understanding the ship's structural arrangements, the loads acting on the ship's structure and the strength of the ship's structure to sustain such loads. This may include: Ship Managers, Technical Superintendents, Ship Masters, Officers and Seafarers; Shipyards Technical Staff; Surveyors; P&I and/or Insurance Inspectors; Naval Architects; Marine Engineers; Etc..

Objectives

On completion of the training, students will be able to:

- Know the typical structural arrangements of different ship types. Understand stiffened panels as the fundamental structural units in ship structures and know the different framing systems used in ship construction
- Know the different types of loads acting on the ship's structure and understand the static sea pressure and the wave induced dynamic sea pressure. Understand the concept of net loading on the ship's structure, shear forces and bending moments. Get familiar with fatigue loads
- Understand the stresses on ship's structure including longitudinal stresses on hull girder, stresses on primary supporting structure and local stresses and the strength of the ships structure. Get familiar with fatigue strength and understand the corrosion and the net scantling approach.

Program

Module 1 – Elements of Ship Structure

- Main ship types
- Materials used in shipbuilding
- Structural elements: Plating, profiles, stiffened panels, midship section, web frame
- Framing systems: Longitudinal framing, mixed framing, transverse framing
- Breakdown of ship structures: Double bottom, side shell, deck, bulkheads, engine room structure, peak tanks

Module 2 – Loads on Ship Structure

- Classification of loads acting on ship structure
- Static and dynamic loads
- Sea pressure
- Internal loads
- Net load on structure
- Bending moment and shear force
- Alternate loading condition

Module 3 – Strength of Ship Structure

- Ship structural strength
- Stress classification
- Spreading of loads through the ships structure
- Hull girder strength
- Strength of primary structure
- Finite element modelling analysis
- Strength of plates and stiffeners: Stress check, section modulus, buckling strength
- Fatigue strength
- Corrosion of ship's structure, consequences of general corrosion
- Net scantling approach