Ship Structure and Constructions

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Abstract: Structural design and verification require the knowledge of the loads acting on the ship and of the morphology of ship structures. This course combines the definition of all loads (by frequency and by structural scheme) and provides relevant methods for their estimation. Thus, the key issue is to learn: how to calculate loads on ship structures, and apply them for design and verification. This course will teach the students: how to implement the pertinent numerical methods in Excel datasheet and understand the level of accuracy of their outcomes.



Lecture 1-4: Definition of the hull girder, flexural beam theory, Static loads from weight and buoyancy

Lecture 5-6: Definition of wave loads on the hull girder. Notes on strip theory. Quasi-static methods for the estimation of wave vertical bending moment (linear vs non linear)

Lecture 7: Dynamic loads on the hull girder and vibration problems

Lecture 8: Hull girder structures: Serviceability vs Ultimate limit states

Contents of the Course



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Lecture 9-10: Hull scantlings: isolate beam approach and local loads





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