

TOP TEN

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Category: **Waterborne**

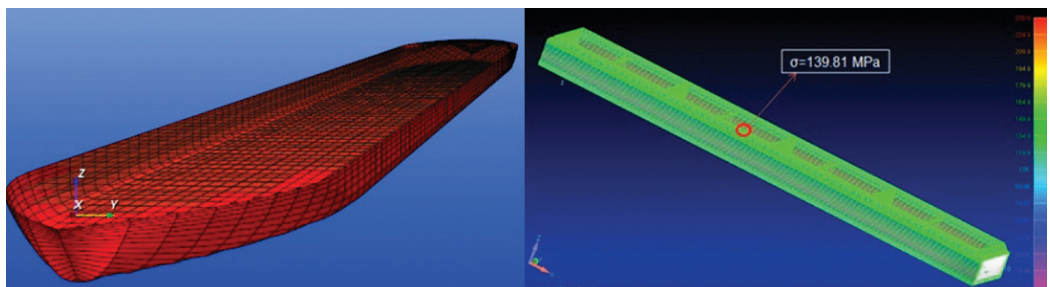
Country: **Belgium**

Research Area 8: **Planning, Modelling and System Design**

Idea Number: **3**

Investigation of hull strength of river sea container vessel

River sea vessels are ships for inland navigation and suitable for restricted navigation at sea in regions where wave height does not exceed two meters. In a container vessel structure, almost the entire deck space is occupied by hatches, leaving a narrow strip of deck plating outboard. This calls for a topside structure of heavy plating or a double hull to provide material in tension, stiffness against lateral and torsional loads, and resistance to buckling in compression when the vessel is in sagging condition. For sea going open deck vessels, torsional loading plays a predominant part to the hull girder strength and for inland navigation open deck vessels; the effect of torsion is rather negligible. Keeping this scenario in mind, the aim of this project is to investigate the hull strength of a river sea container vessel under combined bending and torsional loading to study the effect of torsion on river sea open deck vessel. To perform the strength analysis, a finite element model of the investigated vessel is calculated which also determines still water and wave loads. Subsequently, such a model is verified with classical beam theory and thin wall girder theory. The effect of various loading conditions on structural response is also investigated. The structural responses of different hull configurations are scrutinized under combined bending and torsional loading. Finally, some recommendations are proposed for structural response of river sea container vessel subjected to combined bending and torsional loading.



Key Characteristics

River sea vessels • Restricted navigation