UNIVERSITI TEKNOLOGI MARA

STRUCTURE DESIGN AND STRENGTH ANALYSIS OF AN ECO-FRIENDLY SWATH FOR RECREATIONAL PURPOSES

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ABSTRACT

This study elaborates on the structure and strength analysis of an eco-friendly Small Waterplane Area Twin Hull (SWATH) boat that will serve sustainable recreational purposes. The proposed design of the SWATH boat intends to deal with the issues by optimizing the design parameters and enhancing the strength performance. The main problem resolved in the work is the determination of the appropriate thickness for the hull and further designs of the framing systems to comply with the Rules of Classification Society. Advanced computation is employed to ensure the structural integrity and optimize stress distribution. Thus the methodology for a SWATH will be more complicated than for a monohull ship including different underwater volumes such as Lower Hulls and Struts which will make the Sectional Area Curve complex and can possibly include a Box element above the sea. The outcome is assumed to have the wave-induced loads analyzed with extreme precision by developing novel hull designs resistant to structural fatigue and guarantees the durability of the craft. The outcome will be a design of the ship's structure along with a complete analysis of the structure's strength for the vessel.

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