

**UNIVERSITI TEKNOLOGI MARA**

**HULL DESIGN AND STABILITY OF A MINI  
HOUSEBOAT**

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Dissertation submitted in partial fulfillment  
of the requirements for the diploma of  
**Diploma in Mechanical Engineering**

**College of Engineering**

**December 2023**

## **ABSTRACT**

This study focuses on the hull design and stability of houseboats in Tasik Kenyir. Most houseboats in Tasik Kenyir are large, preventing them from anchoring at the lake's edge for tourist pickup. Additionally, many houseboats in Tasik Kenyir use recycled hulls, which are modified according to the entrepreneur's preferences. The aim of this study is to develop a hull design suitable for mini houseboats, ensuring maximum stability. The study's objective is to design a hull appropriate for mini houseboats and analyze its stability.

The methodology employed in this paper includes evaluating the stability and seakeeping characteristics of monohull, catamaran, and trimaran vessels. The Maxsurf Modeler software is used for hull design, while the PolyCAD software is employed to determine draft values for the hull. The stability analysis involves initial stability analysis, trim calculation analysis, and Gz Curve analysis.

The study successfully generated a design for a mini houseboat hull and produced draft values for the vessel in both lightship and fully loaded conditions. Furthermore, the stability analysis, including initial stability, trim calculation, and Gz Curve analysis, demonstrated the hull's stability. It is recommended to incorporate a backup plan to address potential problems.

## **ACKNOWLEDGEMENT**

In the name of Allah, the Most Gracious and the Most Merciful.

I would like to express my gratitude to the Department of Mechanical Engineering at Universiti Teknologi MARA Cawangan Terengganu Kampus Bukit Besi for providing me with the chance to develop during this final year project (FYP). My educational journey has reached a crucial turning point with the completion of this programme. First and foremost, I would like to express my appreciation to my supervisor, Ts. Mohd Azahari bin Johan, for her valuable guidance, advice, patience, supervision, and support in completing this research project.

I would like to express my gratitude towards my family and friends for their continuous encouragement, care, prayers, and motivation during this journey. I would also like to thank the people who have assisted me directly or indirectly throughout this project. Thank you, and may God bless you all.

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