PRELIMINARY DESIGN STUDY TO REDUCE RESISTANCE FOR HIGH SPEED PLANING CRAFT

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ULTY OF MARITIME STUDIES AND MARINE SCIENCE
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PRELIMINARY DESIGN STUDY TO REDUCE RESISTANCE FOR HIGH SPEED PLANING CRAFT

By
SUEN JIN YOUNG

A thesis submitted in partial fulfillment
of the requirements for the award of the degree of
Bachelor of Applied Science (Maritime Technology)

DEPARTMENT OF MARITIME TECHNOLOGY
FACULTY OF MARITIME STUDIES AND MARINE SCIENCE
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DEPARTMENT OF MARITIME TECHNOLOGY

FACULTY OF MARITIME STUDIES AND MARINE SCIENCE
UNIVERSITI MALAYSIA TERENGGANU

DECLARATION AND VERIFICATION REPORT
FINAL YEAR RESEARCH PROJECT

It is hereby declared and verified that this research report entitled: **Preliminary Design Study to Reduce Resistance for High Speed Planing Craft** by **Suen Jin Young**, **Matric Number UK 20288**, have been examined and all errors identified have been corrected. This report is submitted to the Department of Maritime Technology as a partial fulfillment towards obtaining the degree of **Bachelor of Applied Science (Maritime Technology)**, Faculty of Maritime Studies and Marine Science, Universiti Malaysia Terengganu.

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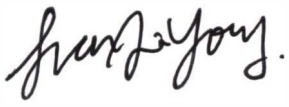
DECLARATION

I hereby declare that the content of this thesis entitled "**Preliminary Design Study to Reduce Resistance for High Speed Planing Craft**" is the result of my own research, except as cited in the references.

Signature	:	
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PRELIMINARY DESIGN STUDY TO REDUCE RESISTANCE FOR HIGH SPEED PLANING CRAFT

ABSTRACT

The aim of this study is to design a high speed planing craft at the preliminary stage using validated and published mathematical models. The generated high speed planing craft design must be an improvement compared to the basis design. The displacement is fixed as the independent variable and modifications will only be done to the length, breadth and draft of the craft. This study describes a methodology that begins with reviewing literatures on high speed planing craft, followed by data collection and establishing new designs based on the basis design. The hull form and lines plan of the designs is generated using the Maxsurf software. Resistance analysis is performed using the Hullspeed software, while fuel consumption rating and manoeuvring capabilities of the high speed planing craft is analysed using mathematical equations. The best design based on mission requirements is then uncovered.

KAJIAN AWAL REKA BENTUK UNTUK MENGURANGKAN RINTANGAN KRAF BERKELAJUAN TINGGI

ABSTRAK

Tujuan kajian ini adalah untuk membuat rekaan bentuk kraf berkelajuan tinggi pada peringkat awal dengan menggunakan model matematik yang telah disahkan dan diterbitkan. Reka bentuk kraf berkelajuan tinggi yang dihasilkan mestilah menunjukkan pembaikan berbanding dengan reka bentuk kraf berkelajuan tinggi yang asal. Muatan kraf berkelajuan tinggi ditetapkan sebagai pemalar dan perubahan hanya akan dibuat pada panjang, lebar dan draf kraf berkelajuan tinggi. Kertas ini akan membincangkan metodologi yang bermula dengan pengkajian tentang kraf berkelajuan tinggi, diikuti dengan pengumpulan data dan mewujudkan reka bentuk baru berdasarkan rekabentuk kraf berkelajuan tinggi asal. Bentuk badan dan pelan garisan kraf berkelajuan tinggi dijana menggunakan perisian Maxsurf. Analisis rintangan dijalankan menggunakan perisian Hullspeed, manakala pengunaan bahan api dan pergerakkan kapal dianalisis menggunakan rumus matematik. Reka bentuk terbaik berdasarkan keperluan misi kemudiannya dikemukakan.