

Engine and Auxiliary Systems

Edited by
Prof. Dr. A.K.M. Mohiuddin



IIUM PRESS

INTERNATIONAL ISLAMIC UNIVERSITY MALAYSIA

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IIUM Press

Published by:
IIUM Press
International Islamic University Malaysia

First Edition, 2011
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Perpustakaan Negara Malaysia

Cataloguing-in-Publication Data

A.K.M. Mohiuddin
Engine and Auxiliary Systems
A.K.M. Mohiuddin

ISBN: 978-967-418-216-8

Member of Majlis Penerbitan Ilmiah Malaysia – MAPIM
(Malaysian Scholarly Publishing Council)

Printed by :
IIUM PRINTING SDN. BHD.
No. 1, Jalan Industri Batu Caves 1/3
Taman Perindustrian Batu Caves
Batu Caves Centre Point
68100 Batu Caves
Selangor Darul Ehsan

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Chapter 7

2nd Generation IIUM Buggy Car – Part I: Design

A.K.M. Mohiuddin

Department of Mechanical Engineering, International Islamic University Malaysia

Abstract

This chapter provides the detailed information involved in the design of the Second generation IIUM buggy car project. Part I includes all details regarding the method of design, design's philosophy, concept and model construction and result evaluation. Background research and literature review have been done in order to provide a basic reference for this buggy car design. Correct material selections and its dimensions can reduce the overall weight of the car while accurate design collaboration within the suspension system can ensure a better maneuver characteristic. A number of design options have been generated. The best choice was based on a lightweight buggy car with high strength performance, good handling characteristic, and also considering excellent driver's ergonomic aspect.

Introduction

By definition, buggy car is a light, four-wheeled vehicle, usually with one seat, and with or without a calash top. The whole concept of this project is mainly referred on four aspects of engineering that are safety, durability, performance and cost. Therefore, extensive research and study have to be done in order to get the most suitable and efficient design for the buggy car. Moreover, as the purpose of this project is to design the 2nd generation buggy car, the 1st built IIUM buggy car will be the main references throughout this project.

The analyses will be focused on three main components that are engine and power train; chassis; as well as the steering, suspension and braking system. These systems will be selected by analyses and tests that will be conducted throughout the duration of the project. There are many restrictions on the car frame and engine which offer enough challenge for knowledge, creativity, and imagination.