



اَوْنُوْرَسِيْتِي تِي كُونُوْمَا رَا  
UNIVERSITI  
TEKNOLOGI  
MARA

**MEC332 - MECHANICAL ENGINEERING DESIGN**

**TITLE: TRASH COMPACTOR**

**GROUP: J4EM1105C**

**PREPARED BY:**

<b>NAME</b>	<b>STUDENTS ID</b>
AHMAD KAMIL DIB BIN SUKIMI	2016639246
UWANUR HASANAH BINTI MOHD ZAIN	2016609186
NUR ADLINA BINTI HAMDAN	2016604046
INTAN NURLIANA BINTI ZAINOL	2016449786

**LECTURE'S NAME:**

**AHMAD NAJMIE BIN RUSLI**

**SUPERVISOR'S NAME:**

**DR AZIANTI BINTI ISMAIL**

## TABLES OF CONTENT

CONTENT	PAGES
<b>ACKNOWLEDGEMENT</b>	5
<b>ABSTRACT</b>	6
<b>CHAPTER 1: INTRODUCTION</b>	
- Project Objectives	8-9
- Design Process Flow Chart	
<b>CHAPTER 2: DESIGN PROBLEM STATEMENT</b>	
<b><u>Market Analysis</u></b>	
- General Need for Product	
- Description and Estimation of Market Size	
- Competitive Products and Benchmarking	
- Opportunity for Competitive Advantage	
	10-22
<b><u>Physics of The Artifact</u></b>	
<b>Criteria for Selecting Final Design Concept</b>	
- Design Parameter	
- Design Variable	
- Design Constraint	
<b>Final Product Design Specification</b>	
<b>CHAPTER 3: CONCEPT GENERATION AND SELECTION</b>	
- Morphological Chart	23-31
- Design Concept	
- Pugh Chart	

## **ACKNOWLEDGEMENT**

Assalamulaikum W.B.T. Firstly, we would like to thank Allah S.W.T. because we finally completed the final year project for Mechanical Engineering Design (MEC332). The preparation of this project has been a truly collaborative effort between the group members, lectures and assistant engineer. We would like to express our gratitude to our supervisor, Dr. Azianti Ismail and assistant engineer in Faculty of Mechanical Engineering, UiTM Pasir Gudang for their valuable guidance, encouragement and cooperation throughout this project.

Next, we would also like to thank all of our group members who had always been dedicated and contributing all their time and energy in making this project successful no matter how hard it is. Without every member's support, this final year project prototype and report is impossible to complete.

We are also thankful to our family members and friends who also struggled to provide us any possible facilities and support with this project. All of them have been support to us in terms of finance, knowledge, prayers and also guidance to successfully finish our final year project.

## **ABSTRACT**

Based on statistics in Malaysia, the second largest source of waste is plastic that is about RM163 million in value. In fact, plastic bags take 500 years to decompose completely. So, we built this prototype to overcome the problem in reducing the usage of garbage plastic bags in the Malaysian households for domestic waste. It would certainly help to reduce the second largest source of waste in Malaysia. The aim of this project is to help in reducing the usage of garbage plastic bags and to gain profit in a respectable way. The objective is to reduce the usage of plastic bags by compacting the garbage and to avoid overflow of garbage bin. In addition, it will help to save time by reducing the frequency of taking the garbage out. At the same time, the prototype will encourage the recycling activity by providing separate sections for recyclable waste. Our target is for the housewives that can help them to save their time in throwing the trash in the big bin.

## **PROJECT OBJECTIVES**

The objective in developing this trash compactor is:

- To reduce the usage of plastic garbage bags by compacting the garbage
- To avoid overflow of garbage bin
- To prove the use of non-environmentally friendly materials can be utilized and have the value to reuse with a safer method compared to being dumped.

Problem statement in producing trash compactor is:

- According to statistics, the second largest source of waste is plastic that is 9% or RM163 million.
- Based on facts, plastic bags take 500 years to decompose completely.

In one study, it was concluded that 36 percent of those interviewed admitted to throwing plastic bags after use once.