



## METAL CHIPS REMOVER

|                         |              |
|-------------------------|--------------|
| MICHAEL NICK ANAK TOMMY | 20DKM13F2034 |
| ROGEELIO JUMAH ROGER    | 20DKM13F1064 |
| VALLERY ANAK TANA       | 20DKM13F1046 |
| DANNY WILSON            | 20DKM13F1045 |
| KELVIN DOUGLAS          | 20DKM13F1058 |

DEPARTMENT OF MECHANICAL ENGINEERING  
POLITEKNIK MUKAH

SESSION: JUNE 2016

## **Metal Chips Remover**

| NAME                       | REG. NUMBER  |
|----------------------------|--------------|
| 1. MICHAEL NICK ANAK TOMMY | 20DKM13F2034 |
| 2. ROGEELIO JUMAH ROGER    | 20DKM13F1064 |
| 3. VALLERY ANAK TANA       | 20DKM13F1046 |
| 4. DANNY WILSON            | 20DKM13F1045 |
| 5. KELVIN DOUGLAS          | 20DKM13F1058 |

This report is submitted to the Department of Mechanical Engineering in partial fulfilment of the requirements for graduation Diploma in Mechanical Engineering

## PROJECT REPORT VERIFICATION

This report entitled "Metal Chips Remover" has been submitted and reviewed as to meet the conditions and requirements of project writing.

Supervisor 1

Signature

Date

Reviewed by:

: ROSMARIA BINTI IBRAHIM

: 

: 20/10/16

"We declare that this report is our own work except each piece that we have explained  
the source"

1. Signature :   
Name : MICHAEL NICK ANAK TOMMY  
Registration Number : 20DKM13F 2034  
Date : 20/10/2016

2. Signature :   
Name : ROGELIO JUMAH ROGFER  
Registration Number : 20DKM13F 1064  
Date : 20/10/2016

3. Signature :   
Name : VALLEY ANAK TANA  
Registration Number : 20DKM13F 1046  
Date : 20/10/2016

4. Signature :   
Name : DANNY WILSON  
Registration Number : 20DKM13F 2045  
Date : 20/10/2016

5. Signature :   
Name : KELVIN DOUGLAS  
Registration Number : 20DKM13F 1058  
Date : 20/10/2016

## ACKNOWLEDGEMENT

We would like to extend our utmost gratitude and appreciation to all those who gave us the possibility to complete this report. A special thanks supervisor, Mdm Rosmaria Binti Ibrahim, for the unwavering guidance, stimulating suggestions and support through the completion of the project and report.

We would also like to express our appreciation to the crucial role of the staff of Mechanical Engineering Welding Workshop, who gave the permission to use all required machinery and the necessary material to complete our project which is Metal Chips Remover.

As a team mate, we would like to thank each other for being cooperating and encourage each other during the progress of completing this Metal Chips Remover.

Last but not least, our thanks to all lecturers of Mechanical Engineering Department for great commitment in briefing and lecture us about the writing of Project Logbook and Final Year Project Report.

## ABSTRACT

Our product name is METALS CHIPS REMOVER. The tools serve the purpose to help to clean machine that dealt with metal scraps. The idea was sparked as the problem, arose during the discussion while debating over cleaning a lathe machine. The problem that was found is that, the safety over a student or whoever that cleaned the machine. It's also take too much time to clean the machine and need many man power to just clean a single machine. So, for this project, we conducted our research which focusing on the machine where the metal scarp are allocated on the lathe machine. As for the tools design, we focus on the effectivity of the tools when used to clean the lathe machine. The design also focus on the right size, which it can go through the small and tight space on the lathe machine. We also make sure that the tools is affordable for every user. The estimated cost for manufacture this tools is around Rm350. We hope that this tool can help those that does their work in workshop.

## Abstrak

Nama produk kami adalah METALS CHIPS REMOVER. Alat ini berkhidmat bertujuan untuk membantu untuk membersihkan mesin yang menghasilkan sisa logam. Idea ini tercetus apabila masalah timbul semasa perbincangan ketika melakukan pembersihan mesin larik. Masalah yang terdapat ialah, keselamatan ke atas seorang pelajar atau sesiapa yang dibersihkan mesin. Ia juga mengambil masa yang lama untuk membersihkan mesin dan memerlukan banyak tenaga kerja untuk hanya membersihkan sesebuah mesin. Jadi, untuk projek ini, kami telah menjalankan penyelidikan yang memberi tumpuan kepada mesin di mana sisa logam yang dihasilkan di mesin larik. Bagi reka bentuk alat, kita memberi tumpuan kepada efektifitas alat apabila digunakan untuk membersihkan mesin larik. Reka bentuk ini juga memberi tumpuan kepada saiz yang betul, yang ia boleh pergi melalui ruang yang kecil dan ketat pada mesin larik. Kami juga memastikan bahawa alat ini adalah mampu milik untuk setiap pengguna. Anggaran kos untuk pembuatan alat-alat ini adalah sekitar RM350. Kami berharap bahawa alat ini boleh membantu mereka yang melakukan kerja-kerja mereka dalam bengkel

## CONTENT

| Chapter | Content                      | Page |
|---------|------------------------------|------|
| 1       | INTRODUCTION                 |      |
|         | 1.1 Introduction             | 1    |
|         | 1.2 Problem Statement        | 1    |
|         | 1.3 Objective                | 1    |
|         | 1.4 Scope                    | 2    |
|         | 1.5 Synopsis                 | 2    |
|         | 1.6 Advantages               | 2    |
| 2       | LITERATURE REVIEW            |      |
|         | 2.1 Introduction             | 4-5  |
|         | 2.2 History Of Electromagnet | 5-7  |
|         | 2.4 Previous Design          | 7-8  |
|         | 2.5 Current Design           | 8-10 |
| 3       | METHODOLOGY                  |      |
|         | 3.1 Concept Flow Chart       | 12   |
|         | 3.2 Design Plan              | 16   |

|                                           |       |
|-------------------------------------------|-------|
| 3.3 Project Design                        | 14    |
| 3.4 Project Assembly Design               | 18-21 |
| 3.5 Material Selection                    | 22-29 |
| <br>                                      |       |
| 4 Problem, Recommendation And Fabrication |       |
| <br>                                      |       |
| 4.1 Introduction                          | 31    |
| 4.2 Discussion                            | 31    |
| 4.3 Problem Statement                     | 32-33 |
| 4.4 Fabrication                           | 34-35 |
| 4.5 Recommendation                        | 36    |
| <br>                                      |       |
| 5 CONCLUSION                              |       |
| 5.1 Conclusion                            | 38    |
| 5.2 Cost                                  | 39    |
| 5.3 Suggestion                            | 40    |

## **REFERENCES**

## **APPENDIX**