

PROTOTYPE DESIGN COLLECTION

SERIES 2



Prototype Design Collection

Series 2



AHMAD NAJMIE RUSLI

**UNIVERSITI TEKNOLOGI MARA CAWANGAN JOHOR
KAMPUS PASIR GUDANG**

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FOREWORD

This digital book on Prototype Design Collection Series 2 (PDC Series 2) is published as a reference design for mechanical engineering students. The designs presented experience a few phases of analysis before fabrication of prototype. Each project summarises the project description, prototype, figures, and design parameter. The design products vary in tools or equipment for household, workshop, entrepreneur, etc. Suggested material and detail of prototype dimension are also mentioned in this book.

It is hoped that this book will assist the students to have more ideas on innovation design products in the future.

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CHAPTER 36

Design and Fabrication of a Consistent Knife Sharpener

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PROJECT DESCRIPTION

Based on an online survey and study, the Consistent Knife Sharpener has been developed. Most survey participants agreed on the importance of using a sharp knife for safety purposes. This project aims to create a machine that uses mechanical movements to consistently sharpen knives to a razor-sharp edge. In Malaysia, a combination silicon carbide whetstone is commonly used, which has both coarse and fine grits. However, maintaining consistent angles while sharpening with an angle guide is more crucial than the type of whetstone used. With this machine, users can easily sharpen their knives and ensure their safety and well-being after use.

Keywords: *Knife sharpener, Design and fabricate*

PROTOTYPE



DESIGN PARAMETER

COURSE NAME : MEC 300 : FINAL YEAR PROJECT	
NAME: NIK RAFIUDDIN RIZKI BIN ABD RAZAK	
STUDENT ID: 2020616952	
CLASS: J4EM1105C	
TITLE: DESIGN AND FABRICATION OF A CONSISTENT KNIFE SHARPENER	
Approved:	Checked:
ASSEMBLY	
PART NO. : -	
SCALE: 1:2	SHEET 1 OF 2

BILL OF MATERIAL (BOM)

ITEM NO.	PART NUMBER	QTY.
1	Mild Steel Base	1
2	Knife Holder	2
3	Welded Stud	4
4	Mild Steel Column	2
5	Adjustable Height Threaded Rod for Knife	1
6	Custom Holder	1
7	M10 Nut	7
8	Mild Steel Rod	1
9	Whetstone Holder	2
10	Whetstone	1
11	Threaded Rod for Whetstone Holder Device	2
12	Column connector	1

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NAME: NIK RAFIUDDIN RIZKI BIN ABD RAZAK	
STUDENT ID: 2020616952	
CLASS: J4EM1105C	
TITLE: DESIGN AND FABRICATION OF A CONSISTENT KNIFE SHARPENER	
Approved:	Checked:
ASSEMBLY DRAWING	
PART NO. : -	
SCALE: 1:3	SHEET 2 OF 2