

UNIVERSITI TEKNOLOGI MARA

**A CASE STUDY: PLAN-DO-CHECK-
ACT (PDCA) CYCLE TO REDUCE
DEFECTS IN MANUFACTURING
PROCESS OF INJECTION
MOULDING IN PLASTIC PARTS**

NUR FARAHIM BINTI AZIZ

Diploma

January 2022

ACKNOWLEDGEMENT

Firstly, I wish to thank God for giving me the opportunity to embark on my diploma and for completing this long and challenging journey successfully. My gratitude and thanks go to my supervisor, Mr. Dr Shukriah Binti Abdullah.

Finally, this dissertation is dedicated to my father and mother for the vision and determination to educate me. This piece of victory is dedicated to both of you. Alhamdullilah.

ABSTRACT

The PDCA Cycle is a set of procedures for gaining useful learning and expertise in order to enhance the production of a product or process over time. PDCA is a four-step iterative quality improvement and productivity improvement approach that is commonly used to improve business strategy. The PDCA cycle is a step-by-step procedure that begins with tiny changes to assess potential effects on processes before progressively progressing to larger and more targeted changes. One of the manufacturing processes that has an obvious and possibly the most defects in production is injection moulding. One of the reasons this topic is picked out it is because a manufacturing process such injection moulding produces a lot of products from plastic parts production yet the defects from this manufacturing process seems to be unavoidable. The importance of PDCA cycle is that it lets companies to generate hypotheses about what needs to change, test these hypotheses in a continuous feedback loop, and gather useful knowledge and learning. The expected results in this project is to improve the product's productivity and quality by reducing the defects through PDCA. So in this project problems like delivery time, cost or in this topic, mainly defects they will be tackled to be fixed by using the PDCA Cycle.

TABLE OF CONTENTS

	Page
CONFIRMATION BY SUPERVISOR	ii
AUTHOR'S DECLARATION	iii
ABSTRACT	iv
ACKNOWLEDGEMENT	v
TABLE OF CONTENTS	vi
LIST OF TABLES	viii
LIST OF FIGURES	ix
LIST OF ABBREVIATIONS	x
 CHAPTER ONE : INTRODUCTION	 1
1.1 Background of Study	1
1.2 Problem Statement	1
1.3 Objectives	1
1.4 Scope of Work	2
1.5 Significance of Study	2
 CHAPTER TWO : LITERATURE REVIEW	 3
2.1 Injection Moulding	3
2.1.1 Clamping	3
2.1.2 Injection	3
2.1.3 Dwelling	4
2.1.4 Cooling	4
2.1.5 Opening	5
2.1.6 Ejection	5
2.2 Possible Defects Found in Injection Moulding	5
2.2.1 Black Dots	5
2.2.2 Colour Lines	6
2.2.3 Flashing	7
2.3 A Quick Overview of the Plan-Do-Check-Act (PDCA) Cycle	8

CHAPTER THREE : METHODOLOGY	9
3.1 Introduction	9
3.2 Plan Phase	11
3.3 Do Phase	12
3.4 Check Phase	12
3.5 Act Phase	12
 CHAPTER FOUR : RESULTS AND DISCUSSION	 13
4.1 Introduction	13
4.1.1 A Summarized Data Collected	13
4.1.2 Data Chart	14
 CHAPTER FIVE : CONCLUSION AND RECOMMENDATIONS	 15
5.1 Conclusions	15
5.2 Recommendations	15
 REFERENCES	 16
 APPENDICES	 18
	19