

**UNIVERSITI TEKNOLOGI MARA**

**THE CONSTRUCTION OF QUARTIC  
BEZIER CURVE WITH  $C^1$   
CONTINUITY**

**WAN NUR ASHILAH SHAMIAH BINTI WAN  
MUHAMMAD SHAFWI**

**BACHELOR OF SCIENCE (Hons.)  
MANAGEMENT MATHEMATICS**

**JULY 2022**

**UNIVERSITI TEKNOLOGI MARA**

**THE CONSTRUCTION OF QUARTIC  
BEZIER CURVE WITH  $C^1$   
CONTINUITY**

**WAN NUR ASHILAH SHAMIAH BINTI WAN  
MUHAMMAD SHAFWI**

**Report submitted in fulfilment of the requirements  
Bachelor of Science (Hons.) Management  
Mathematics Faculty of Computer and  
Mathematical Sciences**

**July 2022**

**SUPERVISOR'S APPROVAL**

**THE CONSTRUCTION OF A QUARTIC BEZIER CURVE WITH C1  
CONTINUITY.**

**By**

**WAN NUR ASHILAH SHAMIAH BINTI WAN MUHAMMAD SHAFAWI  
2019268402**

This report was prepared under the direction of the supervisor, Siti Sarah Binti Raseli. It was submitted to the Faculty of Computer and Mathematical Sciences and was accepted in partial fulfillment of the requirements for the degree of Bachelor of Science (Hons.) Management Mathematics.

Approved by :

.....

Siti Sarah Binti Raseli

Supervisor

JULY 15, 2022

## **STUDENT'S DECLARATION**

I certify that this report and the research to which it refers are the product of my own work and that any ideas or quotations from the work of other people, published or otherwise are fully acknowledged in accordance with the standard referring practices of the discipline.

.....

**WAN NUR ASHILAH SHAMIIHAH BINTI WAN MUHAMMAD SHAFAWI**  
**2019268402**

**JULY 15, 2022**

## ABSTRACT

The primary objective of the study is to construct a quartic bezier curve with five control points that will be used in the  $C^1$  continuity curve technique. The Bezier curve is important because it may be used to describe our everyday lives, especially at this point when the government is increasingly focused on advancing the economic sectors. The creative industries' crafts are given more consideration in company design to enhance the economic sectors. One of the study's main concepts is the hope that the techniques examined in this research can benefit those who work in the design business, such as the craft industry. One method used in this study to aid in the formation of industries is the construction of quartic bezier curves with  $C^1$  continuity. This is because several shapes can be produced utilising technique  $C^1$  continuity on the bezier curve. It opens up a lot more possibilities because there is a wide range of shape options depending on the control point selected. With a computer, there are countless shape options and significant time savings. The suggested method is to enhance the skill of the industries as time goes on as well as the current product. For instance, there is still a mistake in flattening the curvature, especially around the lip of the bottle. The algorithm from MATLAB software will be used to build the quartic bezier curve with  $C^1$  continuity.