GOLDEN RATIO, GOLDEN TRIANGLE AND GOLDEN SPIRAL OF HILT KERIS DESIGNED BY USING EXTENDED CUBIC B-SPLINE AND λμ-B-SPLINE

NUR IZZATI BINTI MAHYUDIN

AIDATUL ANISA BINTI SAIFUL ZAMRI

Thesis submitted in fulfillment of the Requirement for Bachelor Science (Hons.) Computational Mathematics in the Faculty of Computer and Mathematical Sciences Universiti Teknologi Mara

July 2019

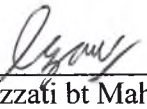
DECLARATION BY CANDIDATE

We certify that this report and the project to which it refers is the product of our own work and that any idea or quotation from the work of other people, published or otherwise are fully acknowledged to accordance with the standard referring practices of discipline.

Aidatul Anisa bt Saiful Zamri

2016299118

11 July 2019



Nur Izzati bt Mahyudin

2016289638

11 July 2019

ABSTRACT

Keris is known as something precious to Malay race in back then and even today. Hilt Keris have numerous design, so this research are utilized to help in finding the best design. Golden ratio, golden spiral and golden triangle are used to find the best design of hilt Keris based on its best value which are 1.6180339877. Extended cubic B-spline and λμ-B-spline are used to interpolate the design of hilt Keris. In extended cubic B-spline, different value of parameter, λ are used while in λμ-B-spline, another parameter is added which is μ, and these two parameter are changed in order to form various design of hilt Keris. The purpose of this research are to design two-dimensional hilt Keris using extended cubic B-spline and λμ-B-spline, to implement golden ratio, golden triangle and golden spiral in the design of hilt Keris obtained from the B-spline methods and compare the result to come by which method that give the best design of hilt Keris. In this research, the parameter value, $\lambda = 3$ gives the best design since the value of golden ratio and golden spiral are approaching to the value of 1.6180339877 compared to the others.

TABLE OF CONTENT