



**FACULTY OF MECHANICAL ENGINEERING  
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**FINAL YEAR PROJECT REPORT**

**THE MODELLING AND OPTIMIZING OF WIRE-EDM  
PROCESS USING A NEURAL NETWORK**

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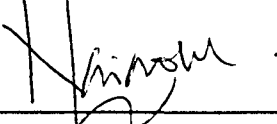
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*In the name of GOD the most Merciful and the Compassionate*

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May GOD bless all of us

Mohd Nasrom Yusoff

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## **Abstract**

Our main title of this final project is “The modeling and optimizing of Wire-EDM using a Neural Network (NT5000)”. Wire-EDM (Electro Discharge Machining) is one type of CNC machine, the other type like milling CNC and lathe CNC. Electro discharge machining is divided with two types, one using an electrode as a tool and the another one using wire as their tool. Our final project just using a Wire-EDM parameter as our data to create a Neural Network (NT5000) for the input and output. Then we also do it an experiment to get an actual data to compare with the results when we finish train and running the Neural Network (NT5000).

Neural Network (NT5000) we using as a tool to optimized our output parameters from the Wire-EDM machine.

The parameter we using as a input is material thickness, wire diameter and wire tension, where the output as a feed rate cutting (mm/min) and surface roughness finish ( $\mu\text{m}$ ). By using this input and output we create one file NT5000 to training our file Neural Network by using a different type of hidden layer, layer and neurons.

After certain training and experiments, we have a data from running NT5000 and also data from the machining (actual machining data), from all data we do it a comparison with the others, we plots a graft and also create a tables to show their comparison with the Neural Network (NT5000) and the actual data from machining.

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