

**UNIVERSITI TEKNOLOGI MARA  
CAWANGAN PULAU PINANG**

**A STUDY AN EFFECT OF  
HARMONIC IN COMPUTER  
LABORATORY OF UITM PULAU  
PINANG**

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**BACHELOR OF ENGINEERING  
(HONS) ELECTRICAL AND  
ELECTRONIC ENGINEERING**

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## **AUTHOR'S DECLARATION**

I declare that the work in this thesis was carried out in accordance with the regulations of Universiti Teknologi MARA. It is original and is the results of my own work, unless otherwise indicated or acknowledged as referenced work.

I, hereby, acknowledge that I have been supplied with the Academic Rules and Regulations, Universiti Teknologi MARA, regulating the conduct of my study and research.

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## **ABSTRACT**

The research of this project is to study an effect of harmonic in computer laboratory at UiTM Pulau Pinang. Basically, the harmonic distortion either current or voltage is known as the changes of amplitude in the waveform of voltage source from the ideal sinusoidal waveform. This is because of non-linear loads such as computers generate the harmonic to the supply. The levels of harmonic distortion at the DB of computer laboratory in UiTM Pulau Pinang will be measured by Fluke 1750 power equipment. An analysis will be made based on harmonic data that was taken. The purpose is to develop analytical method in designing the passive filter that will mitigate the harmonic currents caused by computer loads. For this project, MATLAB /SIMULINK was used to design the proposed model of passive filter circuit to mitigate the harmonic. The simulation circuit of equivalent SMPS for the computer laboratory have 3 different phase which is phase A, phase B and phase C. Simulation results from the proposed circuit model will show the difference result of harmonic levels which have higher  $THD_I$  before installation of passive filter while after passive filter installation, the  $THD_I$  levels was reduced.

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