

**STUDY ON POSSIBILITY TO DESIGN A COMPACT RING MAIN  
UNIT (RMU) 11kV**

Thesis presented in partial of fulfillment for the award of the  
Bachelor of Electrical Engineering (Hons)  
UNIVERSITI TEKNOLOGI MARA  
MALAYSIA



**MOHD SYAIFUL MAZLAN B. AHMAD SAMHUDI**  
Faculty of Electrical Engineering  
UNIVERSITI TEKNOLOGI MARA  
40450 Shah Alam, Selangor

## **ACKNOWLEDGEMENT**

### **IN THE NAME OF ALLAH, THE MOST GRACIOUS, THE MOST MERCIFUL**

All praises be to mighty Allah S.W.T., the Most Gracious, Most Merciful and Most Beneficent for giving me strength and blessing me through out the entire research and completion of this project. Peace upon our Prophet Muhammad S.A.W. who has given light to mankind.

I would like to take this opportunity to express my appreciation, and thankfulness to my supervisor Dr. Ngah Ramzi Bin Hamzah for the consistent consultation and valuable advice throughout the preparation and completion of this project.

Special thanks to Prof Madya Dr Ahmad Maliki Omar and Mr. Mohamad Fauzi Omar who act as a panel and willing to spent their golden time to evaluate my project.

Deep appreciation to my parent and family members on their support, to all the lectures in Electrical Engineering Faculty who give me an advice and also the sources of information such as books and handout which is so important for this project.

Last but not least, thanks to all my friends for their ideas, suggestions and assistance in completing this project. Thanks to all that provide minor and major contribution which has been the constant source of this thesis.

Thank you.

## **ABSTRACT**

This paper presents a study on possibility to design a compact Ring Main Unit (RMU). The concept emphasizes more on two-dimensional (2D) simulation, steady-state condition and the simulation done based on finite element method software. In order to study the stress inside the RMU when normal condition, Finite Element Method (FEMLAB) is use to modeling and solving problems. FEMLAB is a powerful, interactive environment for modeling and solving problem based on partial differential equations (PDEs). FEMLAB is one of the techniques to study about of electrical stress or electric field inside the RMU. The material used for the simulation are silicon rubber for fuse's cover and copper for fuse's conductor and also air as empty space between fuses. The specification of all these material is given in Table 4.1.

**Keywords:** Ring main unit (RMU), electric potential, electric field, electric energy density, electrostatic, femlab, fuse.

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# CHAPTER 1

## INTRODUCTION

### 1.1 Introduction

Distribution networks are normally formed by interconnecting a number of ring shaped grids. The RMUs employed in practice are actually of various shapes and layouts. All too often they take up much space in a substation or switchyard. Figure 1.1 shows a photograph of a typical RMU while Figure 1.2 and Figure 1.3 show its dimensions. The ground clearance, between the one of fuse terminals and the ground, is specified by Tenaga Nasional Berhad to be about 600 mm to allocate for the incoming cables. The other dimensions, labeled as A, B and C in Figure 1.2 are not strictly specified. Dimensions A and C are determined by the size of the fuse employed while Dimension B is determined by the type of circuit breaker employed and its associated triggering mechanism.