

**DESIGN OF EXTERNAL LIGHTNING PROTECTION  
SYSTEM FOR A GREEN ENERGY RESEARCH CENTER  
(GERC) STRUCTURE**

This thesis is presented in partial fulfillment for the award of the  
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## **ABSTRACT**

This study presents the design of external lightning protection system (LPS) on selected building in University Teknologi MARA (UiTM). LPS is complete system used to reduce physical damage due to lightning flashes to a structure. The selected building is Green Energy Research Centre (GERC). The structure is a research centre that has external metal roof which has photovoltaic panel as research equipment. This has a potential to be exposed to lightning strike, so that it is require protection to protect the structure and the equipment. Based on user experience in GERC, the structure struck by lightning several times before. Effect of the lightning strike can damage the equipment on the structure or around affected area. The design of the LPS must have high protection beside the consideration of the economically and technically to optimized the LPS of structure. Most of this design used protection angle method and rolling sphere method as addition method to get better design. Based on the Malaysian Standard (MS) which published by the International Electrotechnical Commission (IEC), the design should follow the standards set in Malaysia with approval method.

## TABLE OF CONTENTS

<b>DECLARATION.....</b>	<b>i</b>
<b>DEDICATION.....</b>	<b>ii</b>
<b>ACKNOWLEDGEMENT.....</b>	<b>iii</b>
<b>ABSTRACT.....</b>	<b>iv</b>
<b>TABBLE OF CONTENT.....</b>	<b>v</b>
<b>LIST OF FIGURES.....</b>	<b>vii</b>
<b>LIST OF TABLES.....</b>	<b>viii</b>
<b>ABBREVIATION.....</b>	<b>ix</b>
<b>CHAPTER 1.....</b>	<b>1</b>
1.1 INTRODUCTION.....	1
1.2 BACKGROUND OF STUDY.....	4
1.3 PROBLEM STATEMENT.....	5
1.4 OBJECTIVE.....	6
1.5 SCOPE OF WORK.....	6
1.6 THESIS ORGANIZATION.....	7
<b>CHAPTER 2.....</b>	<b>8</b>
2.0 LITERATURE REVIEW.....	8
<b>CHAPTER 3.....</b>	<b>17</b>
3.1 METHODOLOGY.....	17

3.1 OVERVIEW.....	17
<b>CHAPTER 4.....</b>	<b>21</b>
4.0 RESULT AND DISCUSSION.....	21
4.1 EXISTING DESIGN OF EXTERNAL LPS.....	24
4.1.1 Air Termination System.....	26
4.1.2 Down Conductor System.....	28
4.1.3 Earth Termination System.....	29
4.2 NEW DESIGN OF EXTERNAL LPS.....	30
4.2.1 Air Termination System.....	31
4.2.2 Down Conductor System.....	34
4.2.3 Earth Termination System.....	37
4.3 COMPARISON.....	38
<b>CHAPTER 5.....</b>	<b>39</b>
5.0 CONCLUSION AND RECOMMENDATION.....	39
5.1 CONCLUSION.....	39
5.2 RECOMMENDATION.....	40
<b>REFERENCES.....</b>	<b>41</b>
<b>APPENDICES.....</b>	<b>42</b>