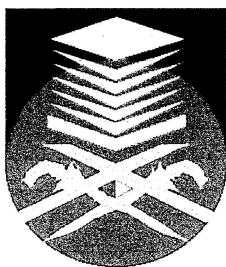


**OVERCURRENT AND EARTH FAULT RELAY SETTING  
AND COORDINATION  
USING PSS-ADEPT**

**A thesis submitted in partial fulfillment of the requirement for the award of  
Bachelor Engineering (Hons) Electrical**



**MUSAFRI BIN ABULLAH AZMI**

**2005749302**

**FACULTY OF ELECTRICAL ENGINEERING**

**UNIVERSITI TEKNOLOGI MARA**

**40450 SHAH ALAM**

**SELANGOR, MALAYSIA**

**MEI 2010**

## ACKNOWLEDGEMENT

بِسْمِ اللَّهِ الرَّحْمَنِ الرَّحِيمِ

In the name of ALLAH, the Most Gracious and the Most Merciful

All praises be to ALLAH SWT for the all bless and strength he has given me during the completion of this final year project.

First of all, I would like to give my special thanks to my dearest supervisor, Mr. Nik Fasdi Bin Nik Ismail who has encouraged me with great ideas, opinion, valuable guidance and support in order for me to complete this project successfully. Thanks for your commitment and your patience in conducting and consulting me.

I want to take this opportunity to express my deepest gratitude to my beloved family who always been supportive. Without them I would have no enthusiasm to go further. My thanks also go out to other members who have been voiced out their opinion or reach or reach out their hands helping me in this project. Lastly thanks also to everyone who is regrettably not named because of shallowness of my minds. Thank you so much from the bottom of my heart.

May Allah Bless Us

## **ABSTRACT**

This paper studies the protective relay setting and coordination using PSS-Adept. Faults and failures normally occur in power system. Power system needs an auxiliary system that must take corrective action on the occurrence of a fault. This auxiliary system is known as protection system. Protection systems are sets of equipments to detect faults in the protected elements of the power systems, to disconnect the faulted element and to re-establish the service. This paper approaches for over current and earth fault as protection system. Protective device coordination is the process of determining the best timing of current interruption when abnormal electrical conditions occur. This paper also uses a bus power system distribution network and implements using protection equipment application in power system simulation programmed for planning, design and analysis of distributed system (PSS/Adept). This paper concludes by the result of study carried out on analysis protective relays configuration

## TABLE OF CONTENT

CHAPTER	DISCRIPTION	PAGE
	Declaration	i
	Acknowledgement	ii
	Abstract	iii
	Table of contents	iv
	List of Figure	vi
	List of Table	vii
	List of Abbreviations	viii
<b>1</b>	<b>INTRODUCTION</b>	
	1.1 Introduction-Background of study	1
	1.2 The function of protective relaying	2
	1.3 Importance to setting and coordination protective relay	3
	1.4 Objective	4
	1.5 Scope of project	5
	1.6 Thesis organization	6
<b>2</b>	<b>LITERATURE REVIEW</b>	
	2.0 Introduction	6
	2.1 Review of study protective relay setting and coordination	7
	2.2 Type of fault	8
	2.2.1 Active fault	8
	2.2.2 Passive fault	10

	2.3 Protective relay	10
	2.3.1 Overcurrent relay	11
	2.3.2 Earth fault relay	12
	2.4 Study of setting and coordination protective relay	14
	2.4.1 Inverse definite time(IDMT)	16
	2.4.2 Current transformer	20
<b>3</b>	<b>METHODOLOGY</b>	
	3.1 Introduction	21
	3.2 PSS-Adept simulation software	22
	3.3 Network design	24
	3.3.1 Overcurrent relay setting	26
	3.3.2 Earth fault relay setting	31
	3.4 TNB standard	33
<b>4</b>	<b>RESULT AND DISCUSSION</b>	
	4.1 Result for overcurrent relay coordination	34
	4.2 Result for earth fault relay coordination	37
	4.3 Discussion of setting and coordination	39
<b>5</b>	<b>CONCLUSIONS</b>	41
<b>6</b>	<b>FUTURE DOVELOPMENT</b>	42
	<b>REFERENCES</b>	41
	<b>APPENDIXES</b>	44