



Faculty: FACULTY OF ELECTRICAL ENGINEERING	
Subject : Specialized 3rd Year Laboratory	Review : 4
Subject Code : SKEE 3742	Release Date : 2 May 2020
	Last Amendment : 19 March 2023



UTM FACULTY OF ELECTRICAL ENGINEERING
UNIVERSITI TEKNOLOGI MALAYSIA

SKEE3742
ADVANCED POWER LABORATORY
PROBLEM
Conflicting Protection System Operation

Prepared by:	Approved by: Programme Director
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Date: 27/3/2023	Date:

Problem:



A task is given to the internship student to coordinate the downstream and upstream protection of a distribution feeder. When checked, it was found that when the current was high, the downstream protection tripped before the upstream protection. However, when the current is low, the upstream protection tripped before the downstream protection. As a supervising engineer, you must identify the problem and brief the student on the correct settings.

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SKEE3742
ADVANCED POWER LABORATORY
STUDENT PACK
Conflicting Protection System Operation

Prepared by:	Approved by: Programme Director
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Date: 22/3/2023	Date:

1. Problem / Project Guide:

Students are expected to read and understand materials related to protection of power system network. Furthermore, students are also required to explore in the distribution system protection.

Questions That Can Help You Tackle the Problem

1. How feeders are protected?
2. What are the settings available for the protection system being used?
3. What are the available characteristic of the relay?
4. What should be done if the downstream protection fails?

The students have to accomplish their task within three weeks' time. As guide, students may follow the problem solving time-line as given in table below.

(a) Problem-solving Time-line

Activities	Week 1	Week 2	Week 3
1. Understanding the problem and related theoretical framework.			
2. Identifying parameters, variables and their relationship.			
3. Familiarization with softwares			
4. Designing case study, parameters to be manipulated and observed, simulation circuits.			
5. Simulation setup and run			
6. Analyze and discuss results			
7. Report Writing			

Assessment criteria are standardized for all laboratories and will generally be the same for all laboratories. For further understanding about the assessment criteria, please refer to PBL Third-year Laboratory Assessment document.

Report Writing

Other than the *general guide* specified by the Laboratory Coordinator, the report must include:

- Experimental Procedures
- Experimental Data
- Photographs of the actual circuit construction
- Circuit diagram
- Photographs of your group members

Part of the student assessment will include reporting of their weekly activities and the log book.

2. Equipments list:	NE9109 protection & Relay Test Set
3. Component list:	
4. Software	ETAP
5. Additional Resources	
6. References	1. Gupta, J.B., "Switchgear and Protection", 3rd ed., New Delhi: S.K. Kataria & Sons, 2013.

2. Badri Ram and Vishwakarma, D.N., "Power System Protection and Switchgear", Tata McGraw-Hill, 2011.
3. Paithankar, Y.G. and Bhide, S.R., "Fundamentals of Power System Protection", 2nd ed., New Delhi: PHI Learning, 2010.
4. Network Protection and Application Guide, Alstom Grid, 2011.