Faculty:	FACULTY OF ELECTRICAL ENGINEERING	
Course : 3rd YEAR SPECIALIZED LABORATORY Course Code : SEEE 3742		Review : 3 Release Date : 2 Februari 2020 Last Amendment : 27 August 2013 Procedure Number :

FACULTY OF ELECTRICAL ENGINEERING

UNIVERSITI TEKNOLOGI MALAYSIA

JOHOR BAHRU

JOHOR

SEEE 3742

BASIC POWER LABORATORY

STUDENT PACK

REDUCTION IN PRODUCTION RATE IN CHOCOLATE FACTORY

Prepared by :	Approved by: Director of POWER Engineering department
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Problem:

During the last meeting, the quality manager of a chocolate factory received complaints from the production supervisor that the production rate was intermittently reduced. From the investigation, it was found that:

a) There was nothing wrong with the equipment – in term of mechanical parts.

b) All the production line process has followed the Standard Operating Procedure (SOP).

The manager raised up this issue to the power utility. You as the facility engineer is assigned by your manager to investigate the issue. Thus, you and your team member are required to identify the cause and the possible solution of this problem. The proposed solution must be validated using available equipment in the laboratory.

1. Problem/Project Guide:

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

(a) Problem-solving Time-line

No	Activities	Week 1	Week 2	Week 3
1	• Understand/identify/Brainstorming • Prepare group proposal, list of materials, allocate task • Set-up an experiments to represent the given problem. • Interview session • Download LabVolt Software (Data acquisition)			
2	• Propose a solution and validate based on the experiment • Submit individual report • Collect data • Interview session			
3	• Continue analyse and interpret data • Interview session • Demo session			

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

(b) Report Writing

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

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

2. Equipment list:

No	Equipment	Model No
1	Power Supply	8821-2A
2	Three Phase Transmission	8329-0A
3	Data Acquisition and Control Interface	9063-00
4	Resistive Load	8311-0A
5	Inductive Load	8321-0A
6	Capacitive Load	8331-0A
7	Regulating Autotransformer	8349-0A

4. Software:

- LVDAC-EMS (Please bring your laptop for software installation during the first meeting)

5. Questions That Can Help You Tackle The Problem

- What are two impacts of transmission line impedance on power transmission system performance?
- Between the two impacts what will affect the most on the system load?
- How to identify the performance of power transmission system?

6. References:

- Electrical Engineering: Principles and Applications, 5th Edition, Allan R. Hambley, Prentice Hall, 2011
- Power System Analysis, 3rd Edition, Hadi Saadat, PSA Publishing, June 16, 2010
- Hughes E, John Hiley, Keith Brown and Ian McKenzie, “Electrical and Electronic Technology”, Pearson: Prentice Hall, 2012