

School: <b>SCHOOL OF ELECTRICAL ENGINEERING</b>	
Course : <b>ELECTRICAL ENGINEERING LABORATORY</b>	Review : 3
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Course Code : <b>SKEE 3742</b>	Procedure Number :



**SCHOOL OF ELECTRICAL ENGINEERING  
UNIVERSITI TEKNOLOGI MALAYSIA  
JOHOR BAHRU  
JOHOR**

**SKEE 3742  
BASIC POWER LABORATORY  
STUDENT PACK**

**REDUCTION IN PRODUCTION RATE IN  
CHOCOLATE FACTORY**

**Problem:**

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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 members 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.

<b>1. Problem/Project Guide:</b>																								
<p>The student has to accomplish their task within four weeks. As guideline, students may follow the problem solving time-line as given in table below</p> <p>(a) Problem-solving Time-line</p> <table border="1" style="margin-left: auto; margin-right: auto;"> <thead> <tr> <th>No</th> <th>Activities</th> <th>Week 1</th> <th>Week 2</th> <th>Week 3</th> </tr> </thead> <tbody> <tr> <td>1</td> <td> <ul style="list-style-type: none"> <li>• Understand/identify/Brainstorming</li> <li>• Prepare group proposal, list of materials, allocate task</li> <li>• Download Etap/powerworld Software</li> <li>• Interview session</li> </ul> </td> <td style="background-color: black;"></td> <td></td> <td></td> </tr> <tr> <td>2</td> <td> <ul style="list-style-type: none"> <li>• Propose a solution</li> <li>• Set-up circuit simulation to represent the given problem.</li> <li>• Submit individual report.</li> <li>• Interview session</li> </ul> </td> <td></td> <td style="background-color: black;"></td> <td></td> </tr> <tr> <td>4</td> <td> <ul style="list-style-type: none"> <li>• Continue set-up circuit simulation</li> <li>• Analyse and interpret data</li> <li>• Discuss with facilitator</li> <li>• Collect data</li> <li>• Presentation (Demo) and interview session</li> <li>• Submit report</li> </ul> </td> <td></td> <td></td> <td style="background-color: black;"></td> </tr> </tbody> </table>					No	Activities	Week 1	Week 2	Week 3	1	<ul style="list-style-type: none"> <li>• Understand/identify/Brainstorming</li> <li>• Prepare group proposal, list of materials, allocate task</li> <li>• Download Etap/powerworld Software</li> <li>• Interview session</li> </ul>				2	<ul style="list-style-type: none"> <li>• Propose a solution</li> <li>• Set-up circuit simulation to represent the given problem.</li> <li>• Submit individual report.</li> <li>• Interview session</li> </ul>				4	<ul style="list-style-type: none"> <li>• Continue set-up circuit simulation</li> <li>• Analyse and interpret data</li> <li>• Discuss with facilitator</li> <li>• Collect data</li> <li>• Presentation (Demo) and interview session</li> <li>• Submit report</li> </ul>			
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<p>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</p>																								

	<p>(b) Report Writing Other than general guide specified by the Laboratory Coordinator, the report must include:</p> <ul style="list-style-type: none"> <li>• Simulation setting</li> <li>• Circuit diagram</li> <li>• Photographs of your group members</li> </ul>												
<b>2.</b>	<b>Parameter list:</b>												
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	<ul style="list-style-type: none"> <li>• Etap /powerworld or any suitable software</li> </ul>												
<b>5.</b>	<b>Questions That Can Help You Tackle The Problem</b>												
	<ul style="list-style-type: none"> <li>• What are two impacts of transmission line impedance on power transmission system performance?</li> <li>• Between the two impacts what will affect the most on the system load?</li> <li>• How to identify the performance of power transmission system?</li> </ul>												
<b>6.</b>	<b>References:</b>												
	<ul style="list-style-type: none"> <li>• Electrical Engineering: Principles and Applications, 5<sup>th</sup> Edition, Allan R. Hambley, Prentice Hall, 2011</li> <li>• Power System Analysis, 3<sup>rd</sup> Edition, Hadi Saadat, PSA Publishing, June 16, 2010</li> <li>• Hughes E, John Hiley, Keith Brown and Ian McKenzie, “Electrical and Electronic Technology”, Pearson: Prentice Hall, 2012</li> </ul>												