

SEKOLAH KEJURUTERAAN ELEKTRIK	
Nama Matapelajaran: Makmal Tahun 3 (PBL)	Semakan : 3
Kod Matapelajaran : SKEE 3742	Tarikh Keluaran : 2008
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	No. Prosedur : PK-UTM-FKE-(0)-10



**UTM**  
UNIVERSITI TEKNOLOGI MALAYSIA

## SKEE 3742

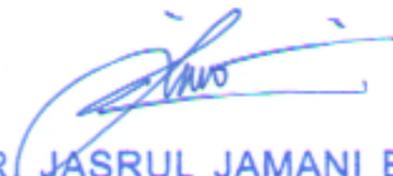
**SEKOLAH KEJURUTERAAN ELEKTRIK**

**FAKULTI KEJURUTERAAN**

**UNIVERSITI TEKNOLOGI MALAYSIA**

### POWER ELECTRONICS LABORATORY STUDENT PACK

#### Basic AC to DC Converter

<p>Disediakan oleh:</p> <p>PM. Dr. Nik Rumzi Nik Idris PM. Dr. Naziha Ahmad Azli PM. Dr. Awang Jusoh PM. Dr. Junaidi Abdul Aziz PM. Dr. Shahrin Md. Ayob PM. Ir. Dr. Tan Chee Wei Dr. Mohd. Rodhi Sahid Dr. Norjulia Mohammad Nordin En. Nik Din Muhammad En. Zaki Daud</p> <p>Tarikh : 18 Julai 2019</p>	<p>Disahkan oleh:</p> <p>Pengarah Program Dr. Jasrul Jamani Jamian</p> <p>Tandatangan Cop :  <b>DR. JASRUL JAMANI BIN JAMIAN</b> Senior Lecturer Electrical Power Eng. Dept. (POWER) Faculty of Electrical Engineering Universiti Teknologi Malaysia 81310 UTM Johor Bahru Johor Darul Takzim</p> <p>Tarikh : 18 Julai 2019</p>
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1.	<p><b>Problem Guide:</b></p> <p>(a) <b>Problem-solving Time-line</b></p> <table border="1" data-bbox="261 306 1425 674"> <thead> <tr> <th data-bbox="269 317 326 359"></th> <th data-bbox="326 317 1049 359">Activities</th> <th data-bbox="1049 317 1174 359">Week 1</th> <th data-bbox="1174 317 1299 359">Week 2</th> <th data-bbox="1299 317 1425 359">Week 3</th> </tr> </thead> <tbody> <tr> <td data-bbox="269 359 326 520">1.</td> <td data-bbox="326 359 1049 520"> <b>Understand the given problem.</b>  <b>Identify what you already know and what you need to know.</b>  <b>Brainstorming for ideas.</b>  <b>Present ideas to facilitator.</b>  <b>Identify the tools that will be used.</b> </td> <td data-bbox="1049 359 1174 520">√</td> <td data-bbox="1174 359 1299 520"></td> <td data-bbox="1299 359 1425 520"></td> </tr> <tr> <td data-bbox="269 520 326 590">2.</td> <td data-bbox="326 520 1049 590"> <b>Start working on solution and simulation design</b>  <b>Run the simulation to obtain results.</b> </td> <td data-bbox="1049 520 1174 590"></td> <td data-bbox="1174 520 1299 590">√</td> <td data-bbox="1299 520 1425 590"></td> </tr> <tr> <td data-bbox="269 590 326 659">3.</td> <td data-bbox="326 590 1049 659"> <b>Set-up hardware and run experiment.</b>  <b>Validate the simulation result.</b> </td> <td data-bbox="1049 590 1174 659"></td> <td data-bbox="1174 590 1299 659"></td> <td data-bbox="1299 590 1425 659">√</td> </tr> </tbody> </table> <p>(b) <b>Report Writing</b>  The report should be submitted 1 week after Week 3. Other than the general guide specified by the Laboratory Coordinator, your report for this laboratory must also include:</p> <ul style="list-style-type: none"> <li>▪ Matlab/Simulink detail simulation results OR Pspice simulation</li> </ul> <p>(c) <b>Questions That Can Help You Tackle The Problem</b></p> <ul style="list-style-type: none"> <li>▪ How can we convert ac to ac power?</li> <li>▪ How can we get variable dc output from constant ac input?</li> </ul>		Activities	Week 1	Week 2	Week 3	1.	<b>Understand the given problem.</b> <b>Identify what you already know and what you need to know.</b> <b>Brainstorming for ideas.</b> <b>Present ideas to facilitator.</b> <b>Identify the tools that will be used.</b>	√			2.	<b>Start working on solution and simulation design</b> <b>Run the simulation to obtain results.</b>		√		3.	<b>Set-up hardware and run experiment.</b> <b>Validate the simulation result.</b>			√
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2.	<p><b>Software:</b></p> <p>(a) Matlab/Simulink are available in most PCs at the laboratory. Please ask the Laboratory technician for assistance. Use the help file within the software to understand the functions of the Simulink blocks.</p>																				
3.	<p><b>Additional resources:</b></p> <p>(a) Basic Simulink tutorial  <a href="http://edu.levitas.org/Tutorials/Matlab/Simulink/">http://edu.levitas.org/Tutorials/Matlab/Simulink/</a></p> <p>(b) SimPowerSystems information  <a href="http://www.mathworks.com/access/helpdesk_r13/help/toolbox/physmod/powersys/powersys.html">http://www.mathworks.com/access/helpdesk_r13/help/toolbox/physmod/powersys/powersys.html</a></p> <p>(c) Aircraft electrical system  <a href="http://www.aerospaceweb.org/question/electronics/q0219.shtml">http://www.aerospaceweb.org/question/electronics/q0219.shtml</a></p> <p>(d) Use Google for further search on related information. Choose relevant keywords from the given problem.</p>																				
4.	<p><b>References:</b></p> <p>(a) Introduction to Power Electronics, Daniel W. Hart, Prentice Hall International Inc., 1997</p> <p>(b) Power Electronics: Circuits, Devices &amp; Applications. Muhammad H. Rashid, Prentice Hall, 2003.</p>																				