SEKOLAH KEJURUTERAAN ELEKTRIK	
Nama Matapelajaran: Makmal Tahun 3 Kod Matapelajaran : SKEE 3742	Semakan : 3 Tarikh Keluaran : 2008 Pindaan Terakhir : 2019 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

Single-Phase PWM Inverter

Disediakan oleh:	Disahkan oleh:
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 Tarikh : 18 Julai 2019	Pengarah Program Dr. Jasrul Jamani Jamian Tandatangan Cop : DR. JASRUL JAMANI BIN JAMIAN Senior Lecturer Electrical Power Eng. Dept. (POWER) Faculty of Electrical Engineering Universiti Teknologi Malaysia 81310 UTM Johor Bahru Johor Darul Takzim Tarikh : 18 Julai 2019

1. Problem Guide:

(a) **Problem-solving Time-line**

	Activities	Week 1	Week 2	Week 3
1.	**Understand the given problem.** **Identify what you already know and what you need to know.** **Brainstorming for ideas.** **Identify the tools that will be used.**	√		
2.	**Present ideas to facilitator.** **Start working on solution and simulation design** **Run the simulation to obtain results.**		√	
3.	**Set-up hardware and run experiment. Validate the simulation result.**			√

(b) **Report Writing**

The report should be submitted after Week 3. Other then the general guide specified by the Laboratory Coordinator, your report for this laboratory must also include

- Matlab/Simulink detail simulation results OR
- Pspice simulation results

(c) **Questions That Can Help You Tackle The Problem**

- How can we convert ac to dc power?
- How can we obtain a variable dc power from a constant ac power input?

2. Software:

(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.

3. Additional resources:

(a) Basic Simulink tutorial
http://edu.levitas.org/Tutorials/Matlab/Simulink/

(b) SimPowerSystems information
http://www.mathworks.com/access/helpdesk_r13/help/toolbox/physmod/powersys/powersys.html

(c) Aircraft electrical system
http://www.aerospaceweb.org/question/electronics/q0219.shtml

(d) Use Google for further search on related information. Choose relevant keywords from the given problem.

4. References:

(a) Introduction to Power Electronics, Daniel W. Hart, Prentice Hall International Inc., 1997
(b) Power Electronics: Circuits, Devices & Applications. Muhammad H. Rashid, Prentice Hall, 2003.