

COURSE PLAN

Course Title	Solar PV Design Module 3 – Grid Connected Solar Photovoltaic (PV) System Design																											
Course duration	4 days																											
Course Fee	RM3,500.00																											
Re-sit fee	RM300.00																											
Passing mark	90% and above																											
Course Status	Core																											
Prerequisite	Solar PV Design Module 1 – Introduction to solar PV design																											
Entry requirement	Completed and passed Solar PV Design Module 1 – Introduction to solar PV design																											
Synopsis	This course explores the core design of grid-connected solar PV based on three aspects, namely design constraints, sizing of interactive grid inverter to the solar array and design of balance of system.																											
Course Outcomes (CO)	<p>By the end of this course, students should be able to:</p> <table border="1" style="margin-left: auto; margin-right: auto;"> <thead> <tr> <th colspan="2"></th> <th colspan="3">Level of Domain</th> </tr> <tr> <th colspan="2"></th> <th>C</th> <th>P</th> <th>A</th> </tr> </thead> <tbody> <tr> <td>CO1</td> <td>Evaluate the pre-design criteria based on a case study</td> <td>5</td> <td></td> <td></td> </tr> <tr> <td>CO2</td> <td>Design the grid inverter based on power and constraints requirement.</td> <td>5</td> <td></td> <td></td> </tr> <tr> <td>CO3</td> <td>Suggest appropriate ratings for the balance of system.</td> <td>5</td> <td></td> <td></td> </tr> </tbody> </table> <p><i>C: Cognitive ; P: Psychomotor ; A: Affective ; S: Soft-skills (CT: Critical Thinking)</i></p>					Level of Domain					C	P	A	CO1	Evaluate the pre-design criteria based on a case study	5			CO2	Design the grid inverter based on power and constraints requirement.	5			CO3	Suggest appropriate ratings for the balance of system.	5		
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Day	Topics	Teaching Activities	Assessment/Evaluation Method
1	DESIGN PART 1 <ul style="list-style-type: none"> Introduction Architectural constraints Energy constraints Budget constraints Solar PV grid inverter Sizing of PV array to Inverter 	Lecture	Test / Final Assessment
2	DESIGN PART 2 <ul style="list-style-type: none"> PV array voltage PV array current Cables Protection devices Key performance index Case study Software PVDes 	Lecture	Test / Final Assessment
3	TUTORIAL SESSION <ul style="list-style-type: none"> Case Study Tutorial covering topics in Day 1 and Day 2 	Tutorial	Test / Final Assessment
4	TEST <ul style="list-style-type: none"> Final Assessment 	Test	Test / Final Assessment

Teaching - Learning Approach	Hours per modules	
	Lectures	8
Tutorial	8	
Laboratory/Practical		
Test	3	
Student-Centered Learning (Teamwork, Reading, Guided Assignments, Practices/Discussion, etc.)	11	
Total	30	
	Percentage	

Assessment	Final Exam		100
	Total		100
Resources	<ol style="list-style-type: none"> 1. SEDA Malaysia Grid Connected Photovoltaic System Design Course, 2nd edition, 2016 2. Majid Jamil, M Rizwan, D P Kothari, Grid integration of Solar Photovoltaic System, CRC Press, Taylor and Francis, 2018 3. G N Tiwari, Arvind Tiwari, Handbook of Solar Energy, Theory, Analysis and Application, Springer, 2016 4. Malaysian Standard MS1837:2010 Installation of Grid Connected Photovoltaic (PV) System, 2010 		
<p style="text-align: center;">Prepared by:</p> <p style="text-align: center;">.....</p> <p style="text-align: center;">Ir. Dr Hazrul bin Mohamed Basri</p> <p>Date:</p>	<p style="text-align: center;">Moderated by :</p> <p style="text-align: center;">.....</p> <p style="text-align: center;">Ir. Dr Kasumawati binti Lias</p> <p>Date:</p>	<p style="text-align: center;">Moderated by :</p> <p style="text-align: center;">.....</p> <p style="text-align: center;">Prof. Dr Wan Azlan bin Wan Zainal Abidin</p> <p>Date:</p>	
<p style="text-align: center;">Checked and certified by:</p> <p style="text-align: center;">.....</p> <p style="text-align: center;">Assoc. Prof Ir. Ts. Dr. Kismet Anak Hong Ping (Head, Department of Electrical and Electronic)</p> <p>Date:.....</p>		<p style="text-align: center;">Approved by:</p> <p style="text-align: center;">.....</p> <p style="text-align: center;">(EIU Representative)</p> <p>Date:.....</p>	