EE428-3: Renewable Energies

Course code and name	EE428-3: Renewable Energies
Credits units	2 Credit units
Contact hours	4 Contact hours: 1 lecture, 1 tutorial and 2 practical
Instructor name	Dr. Slim Abid
Textbook	Renewable and Efficient Electric Power Systems, Gilbert M. Masters.
Other supplemental materials	- Handbook of renewable energy technology, Ahmed F. Zobaa and Ramesh C. Bansal, by World Scientific Publishing Co. Pte. Ltd., 2011 - Energy Resources and Systems, Tushar K. Ghosh _ Mark A. Prelas, ISBN 978-94-007-1401-4 Springer Dordrecht Heidelberg London New York, 2011 - Power Conversion of Renewable Energy Systems, Ewald F. Fuchs Mohammad A.S. Masoum, ISBN 978-1-4419-7978-0 Springer NY D Heidelberg London, 2011
Specific course information	
a. Course description	This course is concerned with the fundamentals of renewable energy technologies. This includes studying Energy conservation, design technology of solar energy system, characteristic of single solar cell and solar cell systems. Moreover, the wind energy systems are considered.
b. Prerequisite	EE322-3
c. Required / Elective	Required
Course Learning Outcomes	
<u>CLO of the Lecture Activities:</u> CLO1: Recognize Energy Production Systems and Sustainable Energy Conversion Processes. CLO2: Analyze Solar Radiation and PVs System Characteristics. CLO3: Design of PV energy system. CLO4: Evaluate Wind Power and Energy Conversion Technology.	

CLO of the Laboratory Activities:

CLO1: Verify theory and to improve knowledge learned in class.

CLO2: Formulate and solve problems related to theory.

CLO3: Design and safety conducts an experimental procedure.

CLO4: Independently perform accurate quantitative measurements, interpret experimental results, perform calculations on these results and draw a reasonable, accurate conclusion.

CLO5: Communicate critical analysis of scientific information through written reports.

CLO6: Be integrated inside a group of work and respect the team working.

Brief list of topics to be covered

- Introduction to energy systems and resources

- Solar Radiation

- Solar Cell and Solar Cell System Characteristics

- Design technology of solar panel and solar energy system

- Wind Turbines and Energy Conversion Technology

Mapping Course Learning Outcomes to Student Outcomes

	Lecture Activities						
	SO1	SO2	SO3	SO4	SO5	SO6	SO7
CLO1							
CLO2							
CLO3							
CLO4							
	Laboratory Activities						
	SO1	SO2	SO3	SO4	SO5	SO6	SO7
CLO1							
CLO2							
CLO3							

CLO4							
CLO5							
CLO6							