FUTURE UNIVERSITY IN EGYPT
جامعة المستقبل

Faculty of Engineering & Technology

Renewable Energy

Information :

Course Code :	EPR 413	**Level :**	Undergraduate	**Course Hours :**	3.00- Hours

Department : Specialization of Electrical Power Engineering

Instructor Information :

Title	Name	Office hours
Lecturer	Walid Atef Hafez ElMetwally Omran	2
Assistant Lecturer	MARIAM AHMED SAMEH MOHAMAD AHMED ABBADI	2

Area Of Study :

1.Understand the need for renewable energy.
2.Know deferent kinds of renewable energy.
3.Know the relation between energy / cost considering cost (effect) of pollutions.
4.Go through wind, photovoltaic and solar thermal central receivers power plants and other renewable sources of energies.
5.Know how we can extract the maximum power of different sources.
6.Share ideas and work in a team or a group.

Course outcomes :

a.Knowledge and Understanding: :	
1 -	Demonstrate knowledge and understanding of components and concepts of renewable energies.
2 -	Illustrate and describe solving techniques of renewable energies.
3 -	Illustrate and describe theorems for solving the problems of different renewable energies.
b.Intellectual Skills: :	
1 -	Express ideas in structural and mathematic terms so that quantities evaluation is facilitated
2 -	Ability to apply different alternative solutions.
3 -	Decide and chose among different solution alternatives.
4 -	Evaluate obtained results both individually or as a part of team.
c.Professional and Practical Skills: :	
1 -	Testing electrical components
2 -	Implementation for different renewable energies.
3 -	Applying solution techniques on simple P V and wind turbine in the labs.
d.General and Transferable Skills: :	
1 -	Write technical reports in accordance with standard scientific guidelines.

2 -	Work in a self-directed manner
3 -	Work coherently and successfully as a part of a team in the Lab.
4 -	Analyze problems and use innovative thinking in their solution.

Course Topic And Contents :

Topic	No. of hours	Lecture	Tutorial / Practical
Basic concepts, components of renewable energy.	5	3	2
Photovoltaic basics: sun tracking.	10	6	4
Maximum power point techniques..	10	6	4
Wind energy conversion systems.	10	6	4
Wind energy generators	10	6	4
Solar thermal power plants.	10	6	4
Hydro power plants.	10	6	4

Teaching And Learning Methodologies :

Lectures
Tutorials
Laboratories
presentations of reports

Course Assessment :

Methods of assessment	Relative weight %	Week No	Assess What
Final Written exam	40.00	15	to assess the comprehensive understanding of the scientific background of the course, to assess the ability of problem solving with different techniques studied
Home reports and presentations	10.00	6	To asses skills of the students
Mid-Term 1	15.00	7	Exams to assess the skills of problem solving, understanding of related topics
Mid-Term 2	15.00	11	Exams to assess the skills of problem solving, understanding of related topics
Performance	10.00	14	to asses the performance of the students through the overall course
Quiz 1 & Assigment 1	5.00	5	Exams to assess the skills of problem solving, understanding of related topics
Quiz 2 & Assigment 2	5.00	9	Exams to assess the skills of problem solving, understanding of related topics

Books :

Book	Author	Publisher
Wind and Solar Power Systems	Mukund R. Patel	CRC Press

Recommended books :

1- “Status, Trends, challenges and the bright Future of solar Elecricity from Photovoltaics” Steven S. Hegedus and Antonio luque.
2- “Wind Energy System’, Gary L. Johnson, Manhattn, Ks.
3- “Springer Series in photovoltaics”, Series Editors T. Kaniga, B Monemar and Y Yamamoto.