



Philadelphia University

Faculty of Engineering - Department of Renewable Energy
Engineering
Second Semester 2016/2017

Course Information

Title: Solar thermal energy (611421)
Prerequisite: Introduction of renewable energy (611411)
Credit Hours: 3 credit hours (16 weeks per semester, approximately 44 contact hours)
Textbook: Solar-Thermal Energy Systems: Analysis and Design
by John R. Howell.

References:

Catalog Description: Introduction of solar thermal energy, residential, commercial and industrial applications, solar radiation, heat transfer, plane and concentrated collectors, water heating applications, heating and cooling the buildings, thermal industrial applications, Water desalination, Solar thermal energy system

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Instructor: **Office:** Engineering building, room 6728, ext: 2180.
Office hours: Sun, Tues, Thurs: 11:10-13:10 and Mon, Wed: 10:00 -12:00

Course Topics

Week	Topic
1&2	Introduction of solar thermal energy
3,4	residential, commercial and industrial applications,
5	solar radiation,
6, 7	heat transfer
8,9	Solar thermal power,
10,11	plane and concentrated collectors,
12,	water heating applications
13, 14	heating and cooling the buildings,
15	thermal industrial applications
16	Water desalination, Solar thermal energy system

Course Learning Outcomes and Relation to ABET Student Outcomes:

Upon successful completion of this course, a student should:

1.	Study solar thermal energy	[a, h]
2.	Able to deal with residential, commercial and industrial applications	[a, h]
3.	Understand solar radiation and heat transfer	[c, h]
4.	use the plane and concentrated collectors,	[c, h]
5.	illustrates water heating applications	[e, h]
6.	Be able to deal with water heating applications for heating and cooling the buildings,	[a, c]
7.	Understand Water desalination	[a, e]

Assessment Instruments:

Evaluation of students' performance (final grade) will be based on the following categories:

Exams: Two written exams will be given. Each will cover about 3-weeks of lectures

Quizzes: 10-minute quizzes will be given to the students during the semester. These quizzes will cover material discussed during the previous lecture(s).

Homework: Problem sets will be given to students. Homework should be solved individually and submitted before the due date.

Copying homework is forbidden, any student caught copying the homework or any part of the homework will receive zero mark for that homework

Participation: Questions will be asked during lecture and the student is assessed based on his/her response

Final Exam: The final exam will cover all the class material.

Grading policy:

First Exam	20%
Second Exam	20%
Homeworks	5%
Quizzes	15%
Final Exam	40%
Total:	100%

Attendance policy:

Absence from classes and/or tutorials shall not exceed 15%. Students who exceed the 15% limit without a medical or emergency excuse, acceptable to and approved by the Dean of the relevant college/faculty, shall not be allowed to take the final examination and shall receive a mark of zero for the course. If the excuse is approved by the Dean, the student shall be considered to have withdrawn from the course.

February, 2017