



Philadelphia University

Faculty of Engineering - Department of Renewable Energy
Engineering
First Semester 2024/2025

Course Information

Title: Geothermal Energy (611542)

Prerequisite: Introduction to solar energy (620420)

Credit Hours: 3 credit hours (16 weeks per semester, approximately 44 contact hours)

Textbook: Geothermal Energy: Sustainable Heating and Cooling Using the Ground 1st Edition, by Marc A. Rosen (Author), Seama Koochi-Fayegh

References:

Catalog Description: Introduction in heat transfer, geothermal resources, heat transfer mechanisms, different heat exchange systems, thermodynamics applications, analysis, design and control heating and cooling systems.

Website: <http://www.philadelphia.edu.jo/academics/ayasin>

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Instructor: **Office:** Engineering Building, Room 711, Ext: 2337

Office hours: Sat, Mon.: 11:00-12:00 and 13:00-14:00

Sun, Tues.: 11:00-12:00 and 14:00-15:00

Course Topics

Week	Topic
1,2	Introduction in heat transfer
3,4,5	geothermal resources
6,7	heat transfer mechanisms
8,9	different heat exchange systems
10,11	thermodynamics applications,
12,13	analysis, design and control heating
14,15	design and control cooling systems.
16	Review, and final exam

Course Learning Outcomes and Relation to ABET Student Outcomes:

Upon successful completion of this course, a student should:

1.	Understand geothermal resources	[K1,S2,]
2.	Deals with heat transfer mechanisms	[K2,S3]
3.	Use different heat exchange systems	[K2,C4]
4.	Be able to understand thermodynamics applications	[K2,S3]
5.	Illustrates, analysis, design and control heating	[K1,K2,S3]

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:

Mid Exam	30%
Homework, quizzes, and participation	30%
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.

October, 2024