The University of Jordan
School of Engineering

Department	Course Name	Course Number	Semester
Mechanical Engineering	Power Plant Engineering	0954443	

2005 Course Catalog Description

This course is concerned with the types, construction, working principles and performance of different types of conventional and non-conventional power plants. The design, construction, operation, and performance of various components of steam, gas and diesel power plant. It also discusses the basics of nuclear energy and operation of nuclear power plants. The course also covers basics of plant economics and the impact of power plants on the environment.

Instructors

Name	E-mail	Sec	Office Hours		Lecture Time	

Text Books

	Text book 1	Text book 2
Title		
Author(s)		
Publisher, Year, Edition		

References

Books	1. Power plant Technology, by M.M. EL-Wakil, McGraw Hill, 1st Edition, 1984 [Textbook] 2. A Course in Power Plant Engineering by Arora and Domkundwar, Dhanpar Rai & Co., 2010 3. Power Plant Engineering by Raja and Srivastava and Dwivedi, New Age International Pub., 2006
Journals	
Internet links	

Prerequisites

Prerequisites by topic	1. Air-standard cycles 2. Vapor power cycles 3. CI Engines operation and performance 4. Chemical thermodynamics 5. Basics of nuclear physics
Prerequisites by course	1. Thermodynamics II 2. Heat Transfer
Co-requisites by course	-
Prerequisite for	

Topics Covered

Week	Topics	Chapter in Text	Sections
1,	Basics of Energy in Jordan		
2,3	Diesel Electric Power Plant		
4,5	Gas turbine Power Plant		
6,7	Steam Power Plants		
8,9	Nuclear Power Plants.		
10,11	Solar Power Plant		
12,13	Wind Energy Plant		
14	Hydroelectric Power Plant		
15	Plant economy		
16	Pollution formation and control		

Mapping of Course Outcomes to ABET Student Outcomes

SOs	Course Outcomes
1	1. Know the various types of power plants used in Jordan. 2. Knowledge of the various types of conventional and non-conventional power plants.
2	3. Calculate the performance parameters of various power plants. 4. Define and calculate the various factors of plant load and economy.
4	5. Knowledge of the operation, construction, and design of various components plants.

Evaluation

Assessment Tools	Expected Due Date	Weight
Quizzes		20%
Midterm Exam		30%
Final Exam		50%

Contribution of Course to Meet the Professional Components

Define terms and factors associated with power plant economics. Calculate present worth depreciation and cost of different types of power plants.

Relationship to Student Outcomes

SOs	1	2	3	4	5	6	7
Availability	X	X		X			

Relationship to Mechanical Engineering Program Objectives (MEPOs)

MEPO1	MEPO2	MEPO3	MEPO4	MEPO5

ABET Student Outcomes (SOs)

1	An ability to identify, formulate, and solve complex engineering problems by applying principles of engineering, science, and mathematics
2	An ability to apply engineering design to produce solutions that meet specified needs with consideration of public health, safety, and welfare, as well as global, cultural, social, environmental, and economic factors
3	An ability to communicate effectively with a range of audiences
4	An ability to recognize ethical and professional responsibilities in engineering situations and make informed judgments, which must consider the impact of engineering solutions in global, economic, environmental, and societal contexts
5	An ability to function effectively on a team whose members together provide leadership, create a collaborative and inclusive environment, establish goals, plan tasks, and meet objectives
6	An ability to develop and conduct appropriate experimentation, analyze and interpret data, and use engineering judgment to draw conclusions
7	An ability to acquire and apply new knowledge as needed, using appropriate learning strategies

Updated by ABET Committee, 2020