



Jordan University of Science and Technology
Faculty of Engineering
Mechanical Engineering Department

ME558 Sustainable Energy Conversion - JNQF Level: 7
Second Semester 2024-2025

Course Catalog
3 Credit Hours. Identifying and modeling different energy resources. Identifying the systems that generate, convert, utilize and store these resources. The course focuses on energy resources, conversion, storage and utilization. Topics include: solar energy calculations and solar systems such as solar ponds, photovoltaic cells, solar collectors, solar distillers, solar cooling, etc. . . , wind energy, ocean energy, hydropower, oil shale, waste energy, geothermal energy, biogas energy, etc . ..
Teaching Method: Electronic Course

Text Book	
Title	Solar Energy
Author(s)	Sukhatme, S. P. (1996),
Edition	2nd Edition
Short Name	SE
Other Information	

Course References

Short name	Book name	Author(s)	Edition	Other Information
PSE	Principles of Sustainable Energy	Kreith, F. and Kreider, J.	1st Edition	
CN	Class Notes.	Mohammad Al-Nimr	1st Edition	

Instructor	
Name	Prof. Mohammad Al-Nimr
Office Location	M5 L3
Office Hours	
Email	malnimr@just.edu.jo

Class Schedule & Room
Section 1: Lecture Time: Sun, Tue : 17:30 - 18:30 Room: متزامن الحضور منصة الكترونية

Prerequisites		
Line Number	Course Name	Prerequisite Type
253431	ME343 Fluid Mechanics	Prerequisite / Study

Mapping of Course Outcomes to Program Outcomes and NQF Outcomes	Course Outcome Weight (Out of 100%)	Assessment method
Understand and analyze the energy crisis, and propose sustainable solutions to address energy challenges. [1SO4] [1L7C2]	15%	
Identify, classify, and evaluate various energy sources and their applications in diverse contexts. [1SO1] [1L7S2]	15%	
Explain the basics of energy storage and perform calculations related to different energy storage systems. [1SO1] [1L7S2]	20%	
Analyze solar radiation, understand solar thermal energy systems, and perform calculations related to solar energy conversion. [1SO1] [1L7S1]	20%	
Evaluate and analyze the calculations of PV systems, wind energy, hydropower, and other renewable energy technologies, emphasizing their efficiency and environmental impact. [1SO1] [1L7S3]	30%	

Relationship to Program Student Outcomes (Out of 100%)						
SO1	SO2	SO3	SO4	SO5	SO6	SO7
85			15			

Relationship to NQF Outcomes (Out of 100%)			
L7S1	L7S2	L7S3	L7C2
20	35	30	15

Date Printed: 2025-03-04