



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

ME722 Energy Efficiency - JNQF Level: 9

First Semester 2024-2025

**Course Catalog**

3 Credit Hours. 3 Credit hours (3 h lectures). Techniques and approaches adapted to improve the efficiency of energy generation, utilization, conversion, transport, storage and management. Energy audits. Energy conservation opportunities for efficiency improvements in different industrial, commercial, transport and domestic sectors. The economic, regulatory, and infrastructure issues affecting implementation of energy efficiency measures as well as their potential for solving energy and environmental problems.

**Teaching Method:** On Campus

**Text Book**

<b>Title</b>	Energy and the New Reality: Energy Efficiency and the Demand for Energy Services, 2010;
<b>Author(s)</b>	L.D. Danny Harvey, Earthscan
<b>Edition</b>	1st Edition
<b>Short Name</b>	Ref#1
<b>Other Information</b>	

**Course References**

Short name	Book name	Author(s)	Edition	Other Information
Ref#2	Guide to Energy Management, Sixth Edition (Seventh Edition available) 2008; ,	Barney L Capehart, Wayne Turner, William J Kennedy	7th Edition	
Ref#3	Sustainable Energy Without the Hot Air, , 2008,	David JC MacKay	1st Edition	

**Instructor**

Name	<b>Prof. Ghassan Tashtoush</b>
Office Location	M5 L2

Office Hours	Sun : 10:00 - 11:00 Mon : 11:00 - 13:00 Tue : 12:00 - 13:00 Wed : 11:00 - 13:00
Email	gtash@just.edu.jo

Class Schedule & Room
Section 2: Lecture Time: Thu : 08:30 - 11:30 Room: LAB

Tentative List of Topics Covered		
Weeks	Topic	References
Week 1	Lesson 1: Energy and Society	From <b>Ref#1</b>
Week 2	Lesson 2: Energy Supply and Demand	From <b>Ref#1</b>
Week 3	Lesson 3: Energy Efficiency	From <b>Ref#1</b>
Week 4	Lesson 4: Energy and the Environment	From <b>Ref#2</b>
Week 5	Lesson 5: Appliances and Lighting	
Week 6	Lesson 6: Home Heating and Cooling Systems	From <b>Ref#2</b>
Week 7	Lesson 7: Boilers, Compressed Air, Fans and Pumps, Steam and Condensate and Waste Heat	From <b>Ref#3</b>
Week 8	Lesson 8: ISO 50001 Energy Management System	From <b>Ref#3</b>
Week 9	Lesson 9: Employee awareness of energy efficiency	From <b>Ref#3</b>
Week 10	Lesson 10: Energy Auditing	From <b>Ref#2</b>

Mapping of Course Outcomes to Program Outcomes and NQF Outcomes	Course Outcome Weight (Out of 100%)	Assessment method
Describe regulations, standards and directives in the field of energy efficiency and energy use in different sectors of society; [1L9S1]	20%	
Describe and analyze how price development in the electricity and district heating market influence the conditions for various energy efficiency measures; [1L9C2]	20%	
Analyze and evaluate energy efficiency measures in a technical, economic and behavioral perspective; [1L9K2]	20%	
Analyze energy use and energy saving measures using energy measurement data and relevant software [1L9S2]	20%	

Independently plan, carry out and report an in-depth analysis in project form, including to relate the results to relevant research. [1L9C5]	20%	
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Relationship to NQF Outcomes (Out of 100%)				
L9K2	L9S1	L9S2	L9C2	L9C5
20	20	20	20	20

Evaluation	
Assessment Tool	Weight
MT Exam	50%
Final Exam	50%

Policy	
OUTLINE OF TOPICS*:	*The topics and corresponding schedule listed in the table above are tentative and may be subject to change during the semester.
MT Exam /Projects	50
AI Use Policy	<p>Overview This policy outlines acceptable AI use in this course while maintaining academic integrity.</p> <p>Acceptable Uses of AI:</p> <ol style="list-style-type: none"> <li>1. Research &amp; Learning: Use AI to gather information, summarize research, and explain topics.</li> <li>2. Brainstorming: AI can help generate ideas and understand complex concepts.</li> <li>3. Writing Assistance: Use AI for grammar checks, style editing, and content organization. The final content must be original.</li> </ol> <p>Prohibited Uses of AI:</p> <ol style="list-style-type: none"> <li>1. Completion: Submitting AI-generated work as your own, including discussion posts and projects, is prohibited.</li> <li>2. Assessments: Using AI to generate answers for quizzes or exams is not allowed.</li> <li>3. Plagiarism: Do not rephrase or paraphrase sources using AI without proper citation. Attribute any AI-generated text appropriately (see my example below).</li> <li>4. Misrepresentation: Presenting AI-generated ideas or analysis as your own is considered academic dishonesty.</li> </ol> <p>Academic Integrity Adhere to the college's academic dishonesty policy. Misuse of AI tools will result in disciplinary action.</p> <p>Cited Source: This policy was generated with ChatGPT AI on 5.23.24 and edited by the instructor.</p>