

Course Description Form

1. Course Name:	
Power Mechanics and Renewable Energy	
2. Course Code:	
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3. Semester / Year:	
2 ^{ed} Semester	
4. Description Preparation Date:	
6/2/2024	
5. Available Attendance Forms:	
Personal	
6. Number of Credit Hours (Total) / Number of Units (Total)	
30/2	
7. Course administrator's name (mention all, if more than one name)	
Name: Dr. Arif A. Al-qassar Email: arif.a.alqassar@uotechnology.edu.iq	
8. Course Objectives	
Course Objectives	<ul style="list-style-type: none"> • Enable the student understand the basic foundation of thermodynamics, heat transfer, and renewable energy. • Enable the student understand the basic theoretical principles of thermodynamics, heat transfer, and renewable energy. • Enable the student to design some thermodynamics, heat transfer, and renewable energy systems.
9. Teaching and Learning Strategies	
Strategy	1- Presentation of computer systems and their problems. 2- Providing solutions to problems in computer systems. 3- Discussing solutions and resulting problems 4- The above points are accomplished through a presentation, homework, and documented reports
10. Course Structure	

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1	2		General Introduction of Thermodynamics	Lectures	Quiz
2	2		Energy State and First Law of Thermodynamics	Lectures + Solving tutorial sheet	Quiz
3-4	4		Basic Thermodynamic processes	Lectures + Solving tutorial sheet	Quiz
5	2		Heat Engines and Second Law of Thermodynamics	Lectures	Discussing and evaluating reports
6	2		General Introduction of Heat Transfer	Lectures	Quiz
7-9	6		Steady-State Conduction- One Dimension	Lectures + Solving tutorial sheet	Quiz
10	2		Unsteady-State Conduction	Lectures + Solving tutorial sheet	Quiz
11-12	4		Convection Heat Transfer	Lectures + Solving tutorial sheet	Quiz
13-15	6		Renewable Energy	Lectures + Solving tutorial sheet	Discussing and evaluating reports

11. Course Evaluation

20% documented exam
5% Quizes
5% reports and homework

12. Learning and Teaching Resources

Required textbooks (curricular books, if any)

Main references (sources)

J. P. Holman, "Heat transfer", 10th Edition , 200
Rayner Joel, "Basic Engineering Thermodynamic: SI Units", 5th Edition, 2008.
John Twidell and Tony Weir "Renewable Energy Sources", 3rd Edition, 2015.

Recommended books and references (scientific journals, reports...)

"Thermodynamics: An Engineering Approach" by Yunus Çengel
"Solar Energy , Fundamentals, Technology, and Systems" by Klaus Jäger

Electronic References, Websites