

**The University of Jordan
School of Engineering**



Department	Course Name	Course Number	Semester
Mechanical Engineering	Thermal and Fluid Sciences Lab	0904249	

2005 Course Catalog Description

Instructors

Name	E-mail	Sec	Office Hours		Lecture Time	

Text Books

	Text book 1	Text book 2
Title	Thermal and Fluid Sciences Laboratory Manuals	Instructor notes
Author(s)		
Publisher, Year, Edition		

References

Books	Y. A. Cengel, J. M. Cimbala and R. H. Turner, "Fundamentals of Thermal-Fluid Sciences", 5 th Ed. SI Units, McGraw Hill, 2017.
Journals	
Internet links	

Prerequisites

Prerequisites by topic	
Prerequisites by course	
Co-requisites by course	
Prerequisite for	

Topics Covered

Week	Topics	Chapter in Text	Sections
1	Losses in pipes.		
2	Hydrostatic pressure force on a plane surface and center of pressure.		
3	Impact of a water jet.		
4	Flow through a nozzle.		
5	Thermal conductivity.		
6	Comparison of pump characteristics.		
7	Heat pump and air cooler.		
8	Liquid-Vapor saturation curve.		
9	Flow Visualization.		

Mapping of Course Outcomes to ABET Student Outcomes

SOs	Course Outcomes
5	<ol style="list-style-type: none"> 1. Compare characteristics of pumps. 2. Understand the working principles in heat pumps and air cooler. 3. Perform flow visualization. 4. Obtain liquid-vapor saturation curve. 5. Ability to work in a team in conducting experiments, collecting data, discussing results, and writing reports.
6	<ol style="list-style-type: none"> 6. Ability to measure losses in pipes, hydrostatic pressure forces, impact of water jet, flow through nozzle, thermal conductivity.

Evaluation							
Assessment Tools		Expected Due Date					Weight
Reports and Participations							30 %
Midterm Exam							30 %
Final Exam							40 %
Contribution of Course to Meet the Professional Components							
Relationship to Student Outcomes							
SOs	1	2	3	4	5	6	7
Availability					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, 2019							