The University of Jordan
School of Engineering

Department	Course Name	Course Number	Semester
Mechanical Engineering	Convection Heat Transfer	0904911	

2025 Course Catalog Description

Differential and integral equations including continuity, momentum, and energy equations. Solutions of momentum and energy boundary layer equations under laminar and turbulent flow conditions.Similarity transformation and solution methods. External and internal heat transfer by convection in both laminar and turbulent flow regimes. Free convection. Heat transfer enhancement techniques, advanced topics in heat transfer; freezing and ablation heat transfer, microscale heat transfer, large scale environmental heat transfer in atmosphere, open reservoirs and ground.

Instructors

Name	E-mail	Section	Office Hours	Lecture Time

Prerequisites

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

Topics Covered

Week	Topics
1	
2	
3	
4	
5	
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9	
10	
11	
12	
13	
14	
15	

Evaluation

Assessment Tools	Expected Due Date	Weight

Contribution of Course to Meet the Professional Components

Relationship to Student Outcomes							
SOs	**1**	**2**	**3**	**4**	**5**	**6**	**7**
Availability							

Relationship to Aeronautical Engineering Program Objectives (AEPOs)				
AEPO1	**AEPO2**	**AEPO3**	**AEPO4**	**AEPO5**

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, 2025