The University of Jordan
School of Engineering

Department	Course Name	Course Number	Semester
Mechanical Engineering	Computational Mechanics and Advanced Techniques	0904908	

2025 Course Catalog Description

This course covers design of experiment, experiment conduction procedures, and analysis of experimental data. Various experiment design methods and their respective characteristics are studied. In particular, factorial and fractions of two-level, three-level, and mixed-level factorials designs are discussed in greater detail. Statistical methods of experimental data, robust statistics methods; reliability and accuracy of statistical modelling and data analysis are covered with computational examples. Individual projects on applications of material studied will be assigned.

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	
6	
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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