The University of Jordan
School of Engineering

Department	Course Name	Course Number	Semester
Mechanical Engineering	Instrumentation	0994501	Spring

2025 Course Catalog Description

Analysis of experimental data. Statistics; mean and variance, Basic electronic measurement and sensing devices, Displacement, area, force, torque, pressure, strain, fluid flow, temperature, and thermal and transport properties measurements.

Instructors

Name	E-mail	Section	Office Hours	Lecture Time

Text Books

	Text book 1	Text book 2
Title	Instrumentation for Engineering Measurements	
Author(s)	James W. Dally	
Publisher, Year, Edition	2nd Edition, John Wiley & Sons	

References

Books	Experimental Methods for Engineers, J. P. Holman, 8th Edition, McGraw Hill.
Journals	
Internet links	

Prerequisites

Prerequisites by topic	
Prerequisites by course	Fundamentals of Electrical Engineering (none EE students) 0903203 + Fluid Mechanics 0904361 + Automatic Control 0994411
Co-requisites by course	
Prerequisite for	Instrumentation and Dynamic Systems Lab. Aircraft Sensors and Actuators

Topics Covered

Week	Topics	Chapter in Text
1	Applications of electronic instrumentation systems	
2-4	Statistical methods	
5	Analysis of circuits, Analog Recording instruments	
6	Sensors for transducers	
7-9	Signal Conditioning circuits	
10-11	Resistance-Type strain gages	
12	Force, torque and pressure measurements	
13	Displacement, Velocity, and acceleration measurements	
14	Temperature measurements	
15-16	Fluid flow measurements	

Mapping of Course Outcomes to ABET Student Outcomes	
SOs	**Course Outcomes**
4,5,6,7	Evaluate different instrumentation components and systems. Analyze experimental data. Investigate different modern measurements systems.

Evaluation		
Assessment Tools	**Expected Due Date**	**Weight**
First Exam		25
Second Exam		25
Final Exam		50

Contribution of Course to Meet the Professional Components
This course is one of the first opportunities for engineering students to encounter the fundamental principles of design problem solving. It is an important prerequisite course for number of designs related-courses, which occur later in the programs of engineering students.

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

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