Jordan University of Science and Technology
Faculty of Engineering
Aeronautical Engineering Department

Course name and number:

AE372 Instrumentation Lab

Credit, contact hours and categorization:

Credit and contact hours	Contact hours	Categorization
1 Credit Hour	One day a week: 3-hours Lab	Engineering Topic

Instructor's or course coordinator's name:

Name	Dr. Montasir Hader
Office location	N1-L2
Email address	hader@just.edu.jo

Textbook and other supplemental materials:

Textbook			
Title	Lab Handout		
Author(s)	AE		
Edition	1st Edition		
Other Information	AE		
References			
Book Name	Author(s)	Edition	Other Information
Experimental Methods for Engineers	J. P. Holman	8th Edition	

Course information:

Course Catalogue		
1 Credit Hours. System response and performance, Strain, pressure, force and temperature measurements, Operational amplifiers, Data acquisition		
Course type: This course is **required** to fulfill the program.		
Prerequisites or co-requisites		
Line Number	Course Name	Prerequisite Type
713700	AE370 Instrumentation	Pre./Con.

Specific goals of the course :

Specific outcomes of instruction and the student outcomes (SO) mapping		
Outcomes	SO Mapping	Course Outcome Weight (Out of 100%)
Familiarize student with statistical analysis of experimental data.	20SO 6, 80SO1	10%

Familiarize student with electronic components and instruments devices.	1SO 6	10%
Familiarize the student with static and dynamic response of common instrument.	80SO 6, 20SO 1	10%
Be able to perform instrument calibration and signal conditioning.	80SO 6, 20SO 8	10%
Evaluate and design performance of different measurement systems.	20SO 5, 70SO 6, 10SO1	10%
Get familiar with operational amplifier and its different types and applications in addition to different electrical components such as power supply	70SO 6, 30SO1	10%
Introduce digital data acquisition and computer interface using LabVIEW software and state-of-the art data interfaces will be used	20SO 2, 30SO 6, 20SO 7, 30SO 8	15%
Enhance the students written, oral, and graphical communication skills	20SO 3, 40SO 4, 40SO 5	25%

Brief list of topics to be covered:

Tentative List of Topics Covered		
Weeks	Topic	References
Week 1	Introduction	From **Textbook**
Week 2	Calibration	From **Textbook**
Week 3	AC circuits tools	From **Textbook**
Week 4	System response Characteristics (FOS & SOS)	From **Textbook**
Week 5	Wheatstone bridge	From **Textbook**
Week 6	Operational Amplifier ((Inverting & Non inverting), Low, High & Band pass filters)	From **Textbook**
Week 7	Operational Amplifier (adder, Integrator, Differentiator & Voltage Follower).	From **Textbook**
Week 8	MidTerm	From **Textbook**
Week 9	magnetic field sensor	From **Textbook**
Week 10	Data acquisition systems	From **Textbook**
Week 11	Temperature measurement trainer	From **Textbook**
Week 12	introduction to signal processing	From **Textbook**
Week 13	introduction to vibration	From **Textbook**
Week 14, 15	Final Exam/Review	From **Textbook**