Jordan University of Science and Technology

Faculty of Engineering

Mechanical Engineering Department

ME472 Instrumentation And Dynamic Systems

Summer Semester 2019-2020

Course Catalog
1 Credit Hours. System response and performance. Dynamic and vibration measurements of systems. Strain and temperature measurements. Operational amplifiers. Data acquisition. (1 cr.)

Text Book	
Title	Instrumentation for Engineering Measurements
Author(s)	James W. Dally
Edition	2nd Edition
Short Name	Reference
Other Information	

Instructor	
Name	**Dr. Mohammad Ali**
Office Location	-
Office Hours	
Email	msa7@just.edu.jo

Class Schedule & Room
Section 1: Lecture Time: Sat, Thu : 11:30 - 14:30 Room: LAB Section 3: Lecture Time: Sat, Thu : 08:30 - 11:30 Room: LAB

Prerequisites		
Line Number	**Course Name**	**Prerequisite Type**
254711	ME471 Instrumentation	Prerequisite / Study
254633	ME463 Mechanical Vibrations	Prerequisite / Study

Tentative List of Topics Covered		
Weeks	**Topic**	**References**
Week 1	Calibration	
Week 2	System response Characteristics (FOS & SOS).	
Week 3	Resistance Type Transducer (Deflection Bridge).	
Week 4	Operational Amplifier (Inverting & No-Inverting).	
Week 5	Operational Amplifier (Integrator, Differentiator and Voltage Follower).	
Week 6	Strain gage (modulus of elasticity, Stress Concentration)	
Week 7	Strain gage (Principal stress & strain, Poisson`sbratio).	
Week 8	Temperature Measurements (Thermocouple).	
Week 9	Mid Exam	
Week 10	Basic Dynamic Measurements.	
Week 11	Lateral Vibration of Beams.	
Week 12	Free Torsional Oscillation with Damping.	
Week 13	Static & Dynamic Balancing.	

Mapping of Course Outcomes to Program Student Outcomes	Course Outcome Weight (Out of 100%)	Assessment method
Ability to perform statistical analysis of experimental data [1SLO1, 3SLO6]	20%	
Be able to perform instrument calibration and relate theoretical principles to real engineering [1SLO6]	20%	
ability to develop and conduct appropriate experimentation, analyze and interpret data, and use engineering judgment to draw conclusion [1SLO6]	60%	

Relationship to Program Student Outcomes (Out of 100%)																
A	B	C	D	E	F	G	H	I	J	K	SLO1	SLO2	SLO3	SLO4	SLO5	SLO6	SLO7
											5					95	

Evaluation

Assessment Tool	Weight
Final	50%
Reports and Quizzes	50%

Policy	
Policy	- No food/ beverages are allowed. - The attendance is mandatory. - No cellphones are allowed during Lab.

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