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Course Syllabus

1	Course title	Mechanical Workshop
2	Course number	0302199
2	Credit hours	(0, 1)
3	Contact hours (theory, practical)	(0, 36)
4	Prerequisites/corequisites	
5	Program title	Physics
6	Program code	0302
7	Awarding institution	University of Jordan
8	School	Science
9	Department	Physics
10	Course level	Second Year
11	Year of study and semester(s)	Second , First Semester
12	Other department(s) involved in teaching the course	Non
13	Main teaching language	English
14	Delivery method	X Face to face learning Blended Fully online
15	Online platforms(s)	Moodle □Microsoft Teams □Skype□Zoom Others
16	Issuing/Revision Date	10/02/2024

مركـز الاعتماد وضمان الجودة	
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18 Other instructors:

None		

19 Course Description:

Exercises involving: filing and shaping of metals, marking, drilling and tapping work pieces; using the lathe; simple electric circuits.

20 Course aims and outcomes:

A- Aims:

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The Mechanical Workshop Skill Development: To develop fundamental mechanical skills such as using hand tools (screwdrivers, wrenches, pliers), power tools (drills, saws), measuring tools (calipers, micrometers), and machinery (lathes, milling machines). wledge that are essential for conducting experiments, building prototypes, and engaging in hands-on work in physics and related fields. It bridges the gap between theoretical knowledge and practical application, preparing students for both academic pursuits and future careers in physics or engineering.

B- Students Learning Outcomes (SLOs):

For purposes of mapping the course SLOs to the physics program SLOs, at the successful completion of the physics program, graduates are expected to be able to:

SLO (1) Master professionally a broad set of knowledge concerning the fundamentals in the basic areas of physics: Classical Mechanics, Electrostatics and Magnetism, Quantum Mechanics, Thermal Physics, Optics, Theory of Special Relativity, Mathematical Physics, Electronics.

SLO (2) Apply knowledge of mathematics and fundamental concepts in the basic areas of physics to identify and solve physics related problems.

SLO (3) Utilize computers and available software in both data collections and data analysis.

SLO (4) Utilize standard laboratory equipment, modern instrumentation, and classical techniques to design and conduct experiments as well as to analyze and interpret data.

SLO (5) Develop a recognition of the need and ability to engage in life-long learning.

SLO (6) Demonstrate ability to use techniques, skills, and modern scientific tools necessary for professional practice.

SLO (7) Communicate clearly and effectively in both written and oral forms.

SLO (8) Apply proficiently team-work skills and employ team-based learning strategies.

SLO (9) Apply professional and ethical responsibility to society.

Upon successful completion of this course, students will be able to:

Program	SLOs SLO	SLO	SLO	SLO	SLO	SLO	SLO	SLO	SLO
Course SLOs	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
 To educate students about workshop safety protocols and practices, ensuring they under the importance of personal protective equipment (PPE), sa handling of tools and equipme and proper use of machinery. 	l stand afe nt,			~	~				

ىتماد جودة	مرکز الاء وضمان ال				
2.	To develop fundamental mechanical skills such as using hand tools (screwdrivers, wrenches, pliers), power tools (drills, saws), measuring tools (calipers, micrometers), and machinery (lathes, milling machines).	~	•		
3.	To teach basic fabrication techniques such as cutting, drilling, shaping, and assembling mechanical components and structures.	~	~		
4.	To enable students to construct experimental setups, prototypes, or apparatus used in physics experiments or research projects.	~	~		

21. Topic Outline and Schedule:

Week	Lecture	Торіс	Intended Learning Outcome	Learning Methods (Face to Face/Blended/ Fully Online)	Platform	Synchronous/ Asynchronous Lecturing	Evaluation Methods	Resources
	1.1	Introduction Units and Dimensions						
1		Calipers and Micrometers: Using tools to measure dimensions with high accuracy.						
	2.1	and Dimensions						
2		Optical Measurement: Employing tools like interferometers to measure small displacements.						



3 3.1 Drilling: Proper techniques for drilling and tapping holes.			Fully Online)	Outcome	- F		,, cen
					Drilling: Proper techniques for drilling and tapping holes.	3.1	3
4 4.1					Milling: Using a milling machine to create precise shapes and cuts.	4.1	4
5 Lathe Operations: Learning to use a lathe for turning, facing, and threading. Image: Comparison of the comparis					Lathe Operations: Learning to use a lathe for turning, facing, and threading.	5.1	5
6 Experimental Setup Design 1 : Designing and setting up experiments to test mechanical theories Image: Construction of the set of th					Experimental Setup Design 1 : Designing and setting up experiments to test mechanical theories	6.1	6
Experimental Setup Design 1 : Designing and 7.1 Experimental Setup Design 1 : Designing and setting up experiments to test mechanical theories					Experimental Setup Design 1 : Designing and setting up experiments to test mechanical theories	7.1	7

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8	8.1	Experimental Setup Design 2 : Designing and setting up experiments to test mechanical theories			
9	9.1	Experimental Setup Design 31: Designing and setting up experiments to test mechanical theories			
10	10.1	Experimental Setup Design 4 : Designing and setting up experiments to test mechanical theories			
11	11.1	Experimental Setup Design 5 : Designing and setting up experiments to test mechanical theories			
12	12.1	Experimental Setup Design 6 : Designing and setting up experiments to test mechanical theories			

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1.	13.1	Experimental Setup Design 7 : Designing and setting up experiments to test mechanical theories			
14	14.1	Experimental Setup Design 8 : Designing and setting up experiments to test mechanical theories			
	15.1				
1:	5 15.2				
	15.3				

22 Evaluation Methods:

Evaluation Activity	Mark	Topic(s)	SLOs	Period (Week)	Platform
First Exam	25	Introduction Units and Dimensions	SLO(1) & SLO(2)	Week 8 (dd/m/yyyy)	First Exam
Second Exam	25	Calipers and Micrometers: Using tools to measure dimensions with high accuracy	SLO(2)& SLO(3)	Week 12 (dd/m/yyyy)	Second Exam

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Final Exam	50	Projects (paper term)	SLO(1) – SLO(9)	(dd/m/yyyy)	Final Exam

23 Course Requirements

White board and overhead projector.

24 Course Policies:

A- Attendance policies:

Regular attendance according to the rules of the host institution

B- Absences from exams and handing in assignments on time:

Based on the rules of the host institution.

C- Health and safety procedures:

Based on the rules of the host institution

D- Honesty policy regarding cheating, plagiarism, misbehavior:

According the rules of the host institution

E- Grading policy:

Grading the exam based on a key solution.

F- Available university services that support achievement in the course:

e-learning.

25 References:

A- Required book (s), assigned reading and audio-visuals:



An Introduction to Error Analysis: The Study of Uncertainties in Physical Measurements 3rd Edition By John R. Taylor

B- Recommended books, materials, and media:

Mechanical Workshop Practice Paperback – August 5, 2010

by K. C. John (Author)

26 Additional information:

 A set of problems for each topic will be assigned as homework. Solutions of these and other problems will be discussed in class.

2) Project (paper term) assigned for each student as final exam assessment.

Name of Course Coordinator: -: Ahmad Masadeh Signature: <i>Ahmad Masadeh</i> Date: -10-02-2024
Head of Curriculum Committee/Department: Signature:
Head of Department: Signature:
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Head of Curriculum Committee/Faculty: Signature:
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