

## Course Syllabus

1	<b>Course title</b>	Practical Physics 1	
2	<b>Course number</b>	0302111	
3	<b>Credit hours</b>	One hour/semester	
	<b>Contact hours (theory, practical)</b>	3 hr/week duration/practical	
4	<b>Prerequisites/corequisites</b>	None	
5	<b>Program title</b>	Bachelor in Physics	
6	<b>Program code</b>	02	
7	<b>Awarding institution</b>	The university of Jordan	
8	<b>School</b>	Science	
9	<b>Department</b>	Physics	
10	<b>Course level</b>	Undergraduate	
11	<b>Year of study and semester(s)</b>	2022/first semester	
12	<b>Other department(s) involved in teaching the course</b>		
13	<b>Main teaching language</b>	English	
14	<b>Delivery method</b>	<input checked="" type="checkbox"/> Face to face learning <input type="checkbox"/> Blended <input type="checkbox"/> Fully online	
15	<b>Online platforms(s)</b>	<input checked="" type="checkbox"/> Moodle <input type="checkbox"/> Microsoft Teams <input type="checkbox"/> Skype <input type="checkbox"/> Zoom <input type="checkbox"/> Others.....	
16	<b>Issuing/Revision Date</b>	10/11/2022	



### 17 Course Coordinator:

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Contact hours:

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### 18 Other instructors:

Name:

Office number:

Phone number:

Email:

Contact hours:

Name:

Office number:

Phone number:

Email:

Contact hours:

### 19 Course Description:

Students perform 11 experiments of 3-hours/week duration. These experiments are: Collection and Analysis of Data, Measurements and Uncertainties, Vectors: Force Table, Kinematics of Rectilinear Motion, Force and Motion, Collision in Two Dimensions, Rotational Motion, Simple Harmonic Motion: Simple Pendulum, The Behavior of Gases with Changes in Temperature and Pressure, The Falling Sphere Viscometer, Specific Heat Capacity of Metals.



**20 Course aims and outcomes:**



#### A- Aims:

The aim of the course is to engage each student in significant experiences with experimental processes and to give such students a good basic understanding of the main physics topics and an introduction to the methods of experimental physics. It will provide a good foundation of basic physics that is applicable to other areas of science and technology. For example, the students will understand and predict the motion of an objects in the real world using a small set of powerful fundamental principles. The laboratories are the backbone of this course, providing opportunities (1) to observe and to analyze motion in our own surroundings, (2) to apply fundamental principles to build explanations of the motion, and (3) to evaluate, in a constructively critical way, their own measurements with standard measurements and models.

#### **B- Intended Learning Outcomes (ILOs): Upon successful completion of this course students will be able to ...**

1. Students completing this course should understand that physics is an experimental science and that observation and experimentation are as important as concepts and theories.
2. state the basic laws of physics in classical mechanics and thermal physics, and identify how they can be applied in various contexts.
3. perform algebraic calculations and give quantitative predictions of outcomes in simple physical systems.
4. identify relevant physical concepts and formulate solutions to simple problems and to present the solutions in a clear manner.
5. perform simple physical experiments, using a variety of physics apparatus, including the gathering, interpretation and analysis of data.
6. Laboratory investigations should encourage students to add some of their own ideas to experiments and their interpretation.
7. Laboratory investigations should engage students in the process of formulating and asking an interesting question of nature. Students then select the methods and apparatus needed to make progress toward finding an answer.

**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: Quantum Mechanics, Classical Mechanics, Electrostatics and Magnetism, 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.**

SLOs ILOs of the course	SL O (1)	SLO (2)	SLO (3)	SLO (4)	SLO (5)	SLO (6)	SLO (7)	SLO (8)	SLO (9)
1				x					
2	x								
3		x		X					
4	x			X					
5	x			X					
6				X					
7				x				x	

## 21. Topic Outline and Schedule:

جدول زمني للتجارب المطروحة في مادة الفيزياء العملية-1 (0302111)

الفصل الدراسي الاول 2022/2023

الفترة الزمنية	رقم التجربة	القاعة	الشعب (1,3,6,7,10,11,13,15,17)	القاعة	رقم التجربة	الشعب (2,4,5,8,9,12,14,16,18)
اسم التجربة			اسم التجربة			اسم التجربة
10/13 -10/9	-	225	Experimental Error	221	-	Experimental Error
10/20- 10/16	1	225	Collection & Analysis of Data	221	1	Collection & Analysis of Data
10/27 – 10/23	2	225	Measurements & Uncertainties	221	2	Measurements & Uncertainties
11/3- 10/30	11	225	Force Table	221	3	Specific Heat Capacity
11/10 -11/6	3	221	Specific Heat Capacity	225	11	Force Table
11/17 -11/13	4	225	Kinematics of Rectilinear Motion	221	4	Kinematics of Rectilinear Motion
11/24- 11/20	10	225	Force & Motion	221	5	Gas Laws
12/1 -11/27	5	221	Gas Laws	225	10	Force & Motion
12/8- 12/4	7	225	Collisions	221	6	Simple Pendulum
12/15- 12/11	6	221	Simple Pendulum	225	7	Collisions

## 22 Evaluation Methods:

Opportunities to demonstrate achievement of the SLOs are provided through the following assessment methods and requirements:

Evaluation Activity	Mark	Topic(s)	ILOs	Period (Week)	Platform
Mid exam	20%	1, 2,11, 3	1,2,3,4,5,6,7	30/11/2022	
Lab reports	30%		1,2,3,4,5,6,7		
Quizzes	10%		1,2,3,4,5,6,7		
Final exam	40%	All Exp	1,2,3,4,5,6,7	30/12/2022	

## 23 Course Requirements

(e.g: students should have a computer, internet connection, webcam, account on a specific software/platform...etc):

## 24 Course Policies:



#### A- Attendance policies:

The students should attend to all the laboratory sessions.

#### B- Absences from exams and submitting assignments on time:

Absence from exams is not allowed, and the students should return to their own instructor in any critical cases.

#### C- Health and safety procedures:

We don't have any policy at the moment considering the safety procedures, nevertheless, the instructor in each session has to give a general safety instructions for the student.

#### D- Honesty policy regarding cheating, plagiarism, misbehavior:

Any of the above misbehavior is not allowed during the lab's sessions.

E- Grading policy: Lab report 30%, Mid Exam 20%, Quizzes 10%, Final 40%.

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

<https://elearning.ju.edu.jo/moodle10/course/view.php?id=8324>.

### 25 References:

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

LABORATORY EXPERIMENTS: PHYSICS LAB- 111

B- Recommended books, materials, and media:

### 26 Additional information:



Name of Course Coordinator: -----ola hassouneh-----Signature: ----- Date: -----
Head of Curriculum Committee/Department: ----- Signature: ----- ---
Head of Department: ----- Signature: ----- -
Head of Curriculum Committee/Faculty: ----- Signature: ----- -
Dean: ----- Signature: -----