



## Course Syllabus

1	Course title	Practical physics for computer science students	
2	Course number	0302116	
3	Credit hours	1	
	Contact hours (theory, practical)	3 hours practical, one theory	
4	Prerequisites/corequisites	0302108 or simultaneously	
5	Program title	BSc	
6	Program code	02	
7	Awarding institution	The university of Jordan	
8	School	Of science	
9	Department	Of physics	
10	Course level	First year	
11	Year of study and semester(s)	2020/2021	
12	Other department(s) involved in teaching the course		
13	Main teaching language	English	
14	Delivery method	<input type="checkbox"/> Face to face learning <input type="checkbox"/> Blended <input checked="" type="checkbox"/> Fully online	
15	Online platforms(s)	<input checked="" type="checkbox"/> Moodle <input checked="" type="checkbox"/> Microsoft Teams <input type="checkbox"/> Skype <input type="checkbox"/> Zoom	
16	Issuing/Revision Date	27/9/2021	

### 17 Course Coordinator:

Name: Ola Hassouneh	Contact hours: 1-2/Sunday, Tuesday, Thursday
Office number:	Phone number: 22023
Email: o.hassouneh@ju.edu.jo	

**18 Other instructors:**

Name:

Office number:

Phone number:

Email:

**19 Course Description:**

11 experiments each of 3 hrs/week duration: collection and analysis of data; vectors: force table; force and motion; Electric Field Mapping; Measurement of Resistance Ohm's Law; Kirchoff's Law; RC-Time Constant; Low-Pass and High Pass Filters; Diode Characteristics; Rectifiers.

**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.

### **B- Physics Program 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.

### **C- Course Intended Learning Outcomes (ILOs):**

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 mechanics, electric, electronics and identify how they can be applied in various contexts.
3. Laboratory investigations should encourage students to add some of their own ideas to experiments and their interpretation.
4. Students will learn to present well-organized, logical and scientifically technical reports.
5. Perform simple physical experiments, using a variety of physics apparatus, including the gathering, interpretation and analysis of data.

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

Program SLOs Course SLOs	SLO (1)	SLO (2)	SLO (3)	SLO (4)	SLO (5)	SLO (6)	SLO (7)	SLO (8)	SLO (9)
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 mechanics , electric, electronics and identify how they can be applied in various contexts.	✓	✓		✓	✓				
3. Laboratory investigations should encourage students to add some of their own ideas to experiments and their interpretation.	✓	✓		✓		✓	✓	✓	
4. Students will learn to present well-organized, logical and scientifically technical reports.				✓			✓	✓	
5. Perform simple physical experiments, using a variety of physics apparatus, including the gathering, interpretation and analysis of data.	✓	✓		✓					

## 21. Topic Outline and Schedule:

Week	Lecture	Topic	Course Intended Learning Outcomes	Learning Methods (Face to Face/Blended / Fully Online)	Platform	Synchronous / Asynchronous Lecturing	Evaluation Methods	Resources
1	13/7-14/7	Experimental Error	1,3,4,5	Fully online	Microsoft teams+ Moodle		Lab-Report+ Oral Midterm Exam+ Oral Final Exam	Lab manual+ recorded experiment video
2	25/7-26/7	Collection & Analysis of Data	1, 3, 4, 5	Fully online	Microsoft teams+ Moodle		Lab-Report+ Oral Midterm Exam+ Oral Final Exam	Lab manual+ recorded experiment video
3	27/7-28/7	Vectors	1-5	Fully online	Microsoft teams+ Moodle		Lab-Report+ Oral Midterm Exam+ Oral Final Exam	Lab manual+ recorded experiment video
4	1/8-2/8	Electric Field Mapping	1-5	Fully online	Microsoft teams+ Moodle		Lab-Report+ Oral Midterm Exam+	Lab manual+ recorded experiment video

							Oral Final Exam	
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5	3/8- 4/8	Measurement of Resistance Ohm's Law	1- 5	Fully online	Microsoft teams+ Moodle	Lab- Report+ Oral Midterm Exam+ Oral Final Exam	Lab manual+ recorded experiment video
6	8/8- 9/8	Kirchhoff's Laws	1- 5	Fully online	Microsoft teams+ Moodle	Lab- Report+ Oral Midterm Exam+ Oral Final Exam	Lab manual+ recorded experiment video
7	10/8- 11/8	Force and Motion	1- 5	Fully online	Microsoft teams+ Moodle	Lab- Report+ Oral Midterm Exam+ Oral Final Exam	Lab manual+ recorded experiment video
8	15/8- 16/8	RC Time Constant	1- 5	Fully online	Microsoft teams+ Moodle	Lab- Report+ Oral Midterm Exam+ Oral Final Exam	Lab manual+ recorded experiment video
9	17/8- 18/8	Low-Pass And High-Pass Filter	1- 5	Fully online	Microsoft teams+ Moodle	Lab- Report+ Oral Midterm Exam+ Oral Final Exam	Lab manual+ recorded experiment video



10		Diode characteristics	1-5	Fully online	Microsoft teams+ Moodle	Lab- Report+ Oral Midterm Exam+ Oral Final Exam	Lab manual+ recorded experiment video
11		Rectifiers	1-5	Fully online	Microsoft teams+ Moodle	Lab- Report+ Oral Midterm Exam+ Oral Final Exam	Lab manual+ recorded experiment video

## 22 Evaluation Methods:

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

Evaluation Activity	Mark	Topic(s)	PHY-Program SLOs	Course ILO's	Period (Week)
Oral Midterm exam	20%	1. Experimental Error 2. Collection & Analysis of Data 3. Vectors 4. Electric Field Mapping 5. Measurement of Resistance Ohm's Law 6. Kirchhoff's Laws	3,4, 6, 7	1-5	10/8/2021
Lab Reports	40%		3, 4, 6, 7	1-5	



Oral Final exam	40%	All experiment	3, 4, 6, 7	1-5	21/8
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## 23 Course Requirements

**students should have:**

**a computer, internet connection, accounts on Moodle, Microsoft Teams and JUEXAM platforms.**

## 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, such as a medical, psychological, or compassionate reasons.

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 to 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:

(1) Course work consists of laboratory work (40%), (2) Midterm exam (20%), (3) Final exam (40%).

F- Available university services that support achievement in the course:  
Moodle and JUEXAM platforms.

## 25 References:





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

**LABORATORY EXPERIMENTS: PHYSICS LAB- 111. Nidal Ershaidat Bashar Lahlouh Ahmad Masadeh Moneeb Shatnawi Ola Hassouneh Ammar Alhusseini. Copyright, The University of Jordan (2017).**

**LABORATORY EXPERIMENTS: PHYSICS LAB- 112. N.SALEH, B.BULOS, I.SHAHIN, A.HINDELEH. Copyright 1998. The University of Jordan.**

B- Recommended books, materials, and media:

1.F. Sears & M. Zemanskys, "University Physics with Modern Physics" 14th edition, Pearson, Pearson Education Limited, 2016.

2. Raymond A. Serway and John W. Jewett Jr., "Physics for Scientists and Engineers with Modern Physics", 9th edition, (Thomson Learning, Belmont, CA, USA, 2014).

3. David Halliday, Robert Resnick, and Jearl Walker, "Extended

4. Giancoli, Physics for Scientists & Engineers with Modern Physics, Principles of Physics", 9th Edition John Wiley & Sons, Inc., 2011.

5. Bauer Westfall, University Physics with Modern Physics, McGrawHill, 2011.

6. <https://www.ld-didactic.de/en/ld-didactic-download-center.html>.

**26 Additional information:**

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Name of Course Coordinator: ---	Signature: -----	Date: ---27/9/2021---
Head of Curriculum Committee/Department: -----	Signature: -----	
Head of Department: -----	Signature: -----	
Head of Curriculum Committee/Faculty: -----	Signature: -----	
Dean: -----	Signature: -----	