

Course Syllabus

1	Course title	Practical Physics -3				
2	Course number	0302215				
3	Credit hours	1 hr/week duration, theory				
	Contact hours (theory, practical)	3 hr/week duration, practical				
4	Prerequisites/corequisites					
5	Program title	Physics				
6	Program code					
7	Awarding institution	The University of Jordan				
8	School	Science				
9	Department	Physics				
10	Course level	2 ^{sd} - year				
11	Year of study and semester(s)	First 2022/2023				
12	Other department(s) involved in teaching the course					
13	Main teaching language					
14	Delivery method	■Face to face learning □Blended □Fully online				
15	Online platforms(s)	ПMoodle ПMicrosoft Teams □Skype□Zoom				
		□Others				
16	Issuing/Revision Date					



17 Course Coordinator:

Name: Ammar Alhusseini

Office number: 009

Contact hours: Mom –Wed – 11:00 – 13:00

Phone number:

Email: a.taha@ju.edu.jo

18 Other instructors:

19 Course Descriptions:

As stated in the approved study plan.

Students perform 10 experiments of 3 hr/week duration and1 hr/week duration, theory. These experiments are: Michelson Interferometer, Single and double Slit, Newton's Rings, Polarization of Light and Polarimetry,

Dispersion and resolving power of the prism, Specific Charge (e/m) of the Electron, Blackbody Radiation, Thermal Conductivity, RC Networks and RLC Circuits.

20 Course aims and outcomes:

A- Aims:

Expose students to a wide range of knowledge in optics and modern physics.

2- ⁵-Enhance students' critical thinking.

- 3- Improve students' capacity to carry out accurate experimental measurements relevant to various physical phenomena and properties of matter.
- 4- Train students to analyze data in pursuit of verifying known scientific facts.
- 5- Train students to analyze experimental uncertainties and determine the accuracy of achievable results.
- 6- Measure some of the basic quantities in modern physics.
- 7- Train students to write well-structured scientific reports.
- 8- Ability to discuss and defend their understanding of modern physics concepts.
- 9- Introduce students to rigorous rules of safety in the laboratory and enhance their awareness.

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 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)
1. Use suitable measuring tools and make accurate measurements of physical quantities using a variety of instruments and devices.		~	~			~			
2. Learn scientific reporting: data collection, presentation, and analysis and error estimation.		~	✓			~			
3. Learn the use of computerized measurement devices in data collection and analysis.		~	~			\checkmark			
4. Measure the important constant Specific Charge (e/m) of the Electron.		~	~			✓			
5. Learn Polarization of Light (Mallus Law) and Polarimetry.		~	~			~			
6. Measure the Plank's constant (Black Body Radiation.		~	~			~			
7. Learn the diffraction and interference of light (Single Slit, Yang double slit, Michelson Interferometer, and Newton's Rings).		~	~			1			_
8. Calculate the resolving power of the prism.		✓	✓			✓		Q	-
9. Use RC Networks and RLC Circuits to find cutoff frequency and resonance frequency.		~	~			✓	AQAC	+03.02.0	1
10. Calculate the thermal conductivity of the glass.		~	~			✓			



21. Topic Outline and Schedule:

Торіс	Week
Michelson Interferometer	1
Newton's Rings	2
Single and double Slit	3
Polarization of Light and Polarimetry	4
Dispersion and resolving power of the prism	5
Blackbody Radiation	6
Specific Charge (e/m) of the Electron	7
Thermal Conductivity	8
RC Networks	9
RLC Circuits	10

22 Evaluation Methods:

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

			GT 0		
Evaluation Activity	Mark	Topic(s)	SLOs	Period (Week)	Platform
•		• • • •		, , ,	
Laboratory			1-10		
			-		•
activities (written					written reports
reports and aval					and anal
reports and orai					
discussion)	40	Exp 1-Exp10		All weeks	discussion
uiscussioni	-10	LAP.I LAPIO			uiscussion
	20	E 1 E 5	15	Othl	
Midterm Exam	20	Exp.1-Exp5	1-5	8 th week	paper
			1-8	During Final	
Final Fyam			-		
Finai Exam	40			• •	
	40	All Experiments		exam period	paper

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:

No more than 15% of classes can be missed under any circumstances.

The students are supposed to be on time for each session

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

Assignments are only taken if submitted on time and no make ups for short quizzes.

C- Health and safety procedures:

The lectures are located in proper locations for best lecturing conditions.

D- Honesty policy regarding cheating, plagiarism, misbehavior:

Any act of cheating or plagiarism is not tolerated and the students are clearly required to submit their own work.

E- Grading policy:

The grading for this course is divided into: 50 % exams, homework, discussions, 50% inal exam.

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

A proper library and very well furnished lab.

25 References:

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

Intermediate practical physics 211 Marouf Abdallah, Mohammed Shaderma and Iyad Jabr 1995 .the university of Jordan

B- Recommended books, materials and media:

. Raymond A. Serway and John W. Jewett Jr., "Physics For Scientists and Engineers

(Any edition).

26 Additional information:



Name of Course Coordinator: Ammar Alhusse	ini Signature:Date: Oct 17,2022		
Head of Curriculum Committee/Department:	Signature:		
Head of Department:	Signature:		
Head of Curriculum Committee/Faculty:	Signature:		
Dean: Si	Dean: Signature:		