Form: Course Syllabus	Form Number	EXC-01-02-02A
	Issue Number and Date	2/3/24/2022/2963 05/12/2022
	Number and Date of Revision or Modification	2023/10/15
	Deans Council Approval Decision Number	265/2024/24/3/2
	The Date of the Deans Council Approval Decision	2024/1/23
	Number of Pages	06

1.	Course Title	Practical Physics V
2.	Course Number	0342411
3.	Credit Hours (Theory, Practical)	2 Practical
	Contact Hours (Theory, Practical)	6 Practical
4.	Prerequisites/ Corequisites	Lab IV, Quantum Mechanics, E&M, Nuclear Physics
5.	Program Title	Physics
6.	Program Code	
7.	School/ Center	Science
8.	Department	Physics
9.	Course Level	4th year
10.	Year of Study and Semester (s)	2024/2025
11.	Program Degree	BSc.
12.	Other Department(s) Involved in Teaching the Course	
13.	Learning Language	
14.	Learning Types	☑Face to face learning ☐Blended ☐Fully online
15.	Online Platforms(s)	☐Moodle ☐Microsoft Teams
16	Issuing Date	May 2025
17.	Revision Date	May 2025

18. Course Coordinator:

Name: Bashar Lahlouh

Contact hours: 10:30 -11:30 Everyday

Office number: 206

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Email: bashar_lahlouh@ju.edu.jo

19. Other Instructors:

Name:
Office number:
Phone number:
Email:
Contact hours:
Name:
Office number:
Phone number:
Email:
Contact hours:

20. Course Description:

This lab gives physics students direct interaction with advanced modern physics concepts. In this lab students get direct hands-on experience on many advanced concepts of physics such as spin and orbital angular momentum, Planck's constant, birefringence, polarization, Gamma ray, Beta particle, X-ray diffraction, elementary charge, Boltzmann constant, and resonance.

21. Program Intended Learning Outcomes: (To be used in designing the matrix linking the intended learning outcomes of the course with the intended learning outcomes of the program)

Students graduating with a bachelor's degree in physics are expected to be able to:

SO1: Identify, formulate, and solve broadly defined technical or scientific problems by applying knowledge of Mathematics and Science and/or technical topics to areas relevant to the discipline.

SO2: Formulate or design a system, process, procedure or program to meet desired needs

SO3: Develop and conduct experiments or test hypotheses, analyze and interpret data and use scientific judgment to draw conclusions

SO4: Communicate effectively with a range of audiences in oral or written forms and exhibit ethical and professional values.

SO5: Reflect the impact of technical and/or scientific solutions in economic, environmental, and societal contexts.

SO6: Function effectively on teams that establish goals, plan tasks, meet deadlines, and analyze risk and uncertainty.

PILO's	*National Qualifications Framework Descriptors*		
	Competency (C)	Skills (B)	Knowledge (A)
1.	☒	☐	☐
2.	☐	☒	☐
3.	☒	☐	☐
4.	☐	☒	☐
5.	☐	☐	☒
6.	☐	☒	☐

* Choose only one descriptor for each learning outcome of the program, whether knowledge, skill, or competency.

22. Course Intended Learning Outcomes: (Upon completion of the course, the student will be able to achieve the following intended learning outcomes)

1) Each team should manage and understand modern physics concepts.

2) Measure some of the basic quantities in modern physics.

3) Handle large amount of data using proper techniques and software packages.

4) Professional experiment reporting, and proper referencing.

5) Ability to discuss and defend their understanding of modern physics concepts.

Course ILOs #	The learning levels to be achieved						Competencies
	Remember	Understand	Apply	Analyse	Evaluate	Create	
1.	**X**	**X**	**X**				
2.		**X**	**X**	**X**	**X**		
3.		**X**	**X**	**X**	**X**		
4.			**X**	**X**	**X**		
5.	X	X	X	X	X		

23. The matrix linking the intended learning outcomes of the course -CLO's with the intended learning outcomes of the program -PILOs:

PILO's * / CLO's	1	2	3	4	5	6	Descriptors**		
							A	B	C
1	X		X						
2	X	X	X						
3	X	X	X						
4			X						
5	X								

***Linking each course learning outcome (CLO) to only one program outcome (PLO) as specified in the course matrix.**

****Descriptors are determined according to the program learning outcome (PLO) that was chosen and according to what was specified in the program learning outcomes matrix in clause (21).**

24. Topic Outline and Schedule:

Week	Lecture	Topic	ILO/s Linked to the Topic	Learning Types (Face to Face/ Blended/ Fully Online)	Platform Used	Synchronous / Asynchronous Lecturing	Evaluation Methods	Learning Resources
1	1.1							
	1.2							
	1.3							
2	2.1							
	2.2							
	2.3							
3	3.1							
	3.2							
	3.3							
4	4.1							
	4.2							
	4.3							

5	5.1							
	5.2							
	5.3							
6	6.1							
	6.2							
	6.3							
7	7.1							
	7.2							
	7.3							
8	8.1							
	8.2							
	8.3							
9	9.1							
	9.2							
	9.3							
10	10.1							
	10.2							
	10.3							
11	11.1							
	11.2							
	11.3							
12	12.1							
	12.2							
	12.3							
13	13.1							
	13.2							
	13.3							
14	14.1							
	14.2							
	14.3							
15	15.1							
	15.2							
	15.3							

25. Evaluation Methods:

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

Evaluation Activity	***Mark wt.**	**CILO's**					
		1	**2**	**3**	**4**	**5**	**6**

First Exam							
Second Exam –If any							
Final Exam	40%						
**Class work	20%						
Projects/reports	40%						
Research working papers							
Field visits							
Practical and clinical							
Performance Completion file							
Presentation/ exhibition							
Any other approved works							
Total 100%							

*** According to the instructions for granting a Bachelor's degree.**

****According to the principles of organizing semester work, tests, examinations, and grades for the bachelor's degree.**

Mid-term exam specifications table*

No. of questions/ cognitive level						No. of questions per CLO	Total exam mark	Total no. of questions	CILO/ Weight	CILO no.
Create **%10**	Evaluate **%10**	analyse **%10**	Apply %20	Understand **%20**	Remember %30					
1	1	1	4	2	1	10	100	100	10%	1

Final exam specifications table

No. of questions/ cognitive level						No. of questions per CLO	Total exam mark	Total no. of questions	CILO Weight	CILO no.
Create **%10**	Evaluate **%10**	analyse **%10**	Apply %20	Understand **%20**	Remember %30					
										1
										2
										3
										4

										5

26. Course Requirements:

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

27. Course Policies:

A- Attendance policies: no more than two lab sessions can be missed under any circumstances.

The students are supposed to be on time to each lab session and will not be admitted after 20 minutes from the starting time.

B- Absences from exams and handing in assignments on time: Assignment are only taken if submitted on time and no make ups for short quizzes.

C- Health and safety procedures: The lab is prepared such that it does not pose any hazards to the students or the instructors. Continuous monitoring during lab sessions and continuous reminding of all safety issues are addressed at the beginning of each lab session.

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 lab is divided into 40 % lab report and discussions, 20% short quizzes, 40% final exam

F- Available university services that support achievement in the course: a proper library and very well-furnished lab.

28. References:

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

The Lab manual

B- Recommended books, materials, and media:

* Physics for Scientists and Engineers, Serway, (any edition) *Modern Physics, Anderson *Introduction to Solid State Physics, C. Kittel *Introduction to Quantum Mechanics. D. J. Griffiths *Youtube and internet resources.

29. Additional information:

Name of the Instructor or the Course Coordinator: ……Bashar Lahlouh ……	Signature: ……..……	Date: May 2025…
Name of the Head of Quality Assurance Committee/ Department …….	Signature: ……..……	Date: ……..……
Name of the Head of Department …….	Signature: ……..……	Date: ……..……
Name of the Head of Quality Assurance Committee/ School or Center …….	Signature: ……..……	Date: ……..……
Name of the Dean or the Director …….	Signature: ……..……	Date: ……..……