مركز الاعتماد
وضمان الجودة
ACCREDITATION & QUALITY ASSURANCE CENTER

Course Syllabus

1	Course title	General physics for life sciences	
2	Course number	0342103	
3	Credit hours	3	
	Contact hours (theory, practical)	3 hours weekly	
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	Freshman -1st- 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)	■Moodle ■Microsoft Teams □Skype□Zoom □Others…………	
16	Issuing/Revision Date		

17 Course Coordinator:

Name: Ammar Alhusseini	**Contact hours: Mom –Wed – 11:00 – 13:00**
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18 Other instructors:

Name: Eman Daar

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19 Course Descriptions:

As stated in the approved study plan.

20 Course aims and outcomes:

A- Aims:

1- **Understanding the fundamental concepts in motion.**
2- **Utilizing physics concepts qualitatively as well as quantitatively.**
3- **To develop critical thinking and analytical problem-solving skills.**
4- **To gain an appreciation of how large a role electromagnetism plays in our daily life.**

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 / Course SLOs	SLO (1)	SLO (2)	SLO (3)	SLO (4)	SLO (5)	SLO (6)	SLO (7)	SLO (8)	SLO (9)
1. Understanding Measurement, Standard, and Units.	✓	✓			✓	✓	✓		
2. Define what Motion in One Dimension, Newton's laws.	✓	✓			✓	✓	✓		
3. Understanding vector algebra.	✓	✓			✓	✓	✓		
4. Calculate the acceleration, velocity for an object.	✓	✓			✓	✓	✓		
5. The use of torque and equilibrium in some applications of life.	✓	✓			✓	✓	✓		
6. Using the principle of energy conservation in the analysis of some life applications.	✓	✓			✓	✓	✓		
7. Study the basic concepts of the behavior of gases, thermodynamics' law and temperature.	✓	✓			✓	✓	✓		
8. Define what fluids and sound.	✓	✓			✓	✓	✓		

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21. Topic Outline and Schedule:

Chapter Number	Title	Required Section	Suggested Problems
1	**Motion in a straight line**	**1.1 Measurement, Standard, Units, and Errors.** **1.2 Displacement, Average Velocity.** **1.3 Instantaneous Velocity.** **1.4 Acceleration.** **1.5 Finding the Motion of an object.** **1.6 The Acceleration of Gravity and Falling Object.**	**21,23,28,34,42,45,49,52**
2	**Motion in Two Dimensions**	**2.1 An Introduction to Vectors**	**7,8,9,11**
3	**Newton's Laws of Motion**	**3.1 Force, Weight, and Gravitational mass.** **3.2 Density.** **3.3 Newton's First Law.** **3.4 Equilibrium.** **3.5 Newton's Third Law.** **3.6 Newton's Second Law.** **3.7 The Significance of Newton's Laws of Motion.** **3.8 Some Examples of Newton's Laws.** **3.12 Friction.**	**29,31,42,46,52,66,79,101,109**
4	**Statics**	**4.1 Torque.** **4.2 Equilibrium of Rigid Bodies.** **4.3 The Center of Gravity.** **4.5 Levers; mechanical Advantage.** **4.7 Levers in the Body.**	**7,8,11,13,17,21,41,51,55**
6	**Worke, Energy and Power.**	**6.1 Work.** **6.2 Kinetic Energy.** **6.3 Potential Energy and Conservation Force.** **6.4 Dissipative Force.** **6.5 Observation on Work and Energy.** **6.6 Solving Problems Using Work and Energy.**	**6,11,15,22,37,69**

		6.9 Power.	
10	Temperature and the Behavior of Gasses	10.1 Temperature Scale. 10.2 Molecular Masses. 10.3 Pressure. 10.4 The Ideal Gas Law. 10.5 Gas Mixtures. 10.6 Temperature and Molecular Energies. 10.7 Diffusion. 10.8 Dilute Solutions; Osmotic Pressure.	3,8,17,18,19,26,27,42,52
11	Thermodynamics	11.1 Mechanical Work. 11.2 The First Law of Thermodynamics.	1,2,7,8,9
12	Thermal Properties of Matter	12.1Thermal Expansion. 12.2 Heat capacity.	3,7,14
13	The Mechanics of Nonviscous Fluid	13.2 The Equation of Continuity; Streamline Flow. 13.3 Bernoulli's Equation.	11,12,21,23
22	Sound	22.1The Nature and Speed of Sound. 22.2 Standing Sound Waves. 22.3 The Intensity of Sound Waves. 22.4 Sound Sources. 22.5 Sound Detectors. 22.6 Auditory Response.	6,7,17,19,27,39,41

22 Evaluation Methods:

Opportunities to demonstrate achievement of the SLOs are provided through the following assessment methods and requirements:					
Evaluation Activity	Mark	Topic(s)	SLOs	Period (Week)	Platform
First Exam	30	Chapters 1, 2, 3 and 4	1,2,3,4,5	9th week	Computerized
Second Exam	20	Chapters 6and10	6,7	12th week	Computerized
Final Exam	50	All chapters	1-8	During Final exam period	Computerized

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:

Joseph W. Kane and Morton M. Sternheim, "Physics", 3rd edition, John Wiley & Sons, 1988.

B- Recommended books, materials and media:

1. Raymond A. Serway and John W. Jewett Jr., "Physics For Scientists and Engineers (Any edition).

2. David Halliday, Robert Resnick, and Jearl Walker, "FUNDAMENTALS OF PHYSICS", 4th edition (Wiley, New York, 1993).

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26 Additional information:

Name of Course Coordinator: Ammar Alhusseini   Signature:-------Date: Oct 17,2022
Head of Curriculum Committee/Department: -----------------------Signature: ---------------
Head of Department: -------------------------------------- Signature: ------------------------------
Head of Curriculum Committee/Faculty: ----------------------- Signature: --------------------
Dean: --- Signature: ---------------------------------