



The University of Jordan

Accreditation & Quality Assurance Center

COURSE Syllabus

1	Course title	General physics
2	Course number	5512101
3	Credit hours (theory, practical)	3 credit hours
	Contact hours (theory, practical)	3 credit hours
4	Prerequisites/corequisites	-----
5	Program title	Coastal Environment
6	Program code	2
7	Awarding institution	University of Jordan/Aqaba
8	Faculty	Faculty of Marine Sciences
9	Department	Coastal Environment
10	Level of course	1 st year
11	Year of study and semester (s)	2 nd semester 2014/2015
12	Final Qualification	Bachelor Degree
13	Other department (s) involved in teaching the course	Marine biology
14	Language of Instruction	English
15	Date of production/revision	

16. Course Coordinator:

- Office numbers, office hours, phone numbers, and email addresses should be listed.
- Office number: 345
- Office hours: Mon, Wed (11:00-12:30)
- Phone number (office): 03-2090450/35076
- Email address: e.alabsi@ju.edu.jo

17. Other instructors:

Office numbers, office hours, phone numbers, and email addresses should be listed.

- Office number: 345
- Office hours: Mon, Wed (11:00-12:30)
- Phone number (office): 03-2090450/35076
- Email address: e.alabsi@ju.edu.jo

18. Course Description:

As stated in the approved study plan.

Motion in one dimension, vectors, motion in two dimensions, the law of motions, Circular Motion and Other Applications of Newton's Laws, Energy and Energy Transfer, Potential Energy, Linear Momentum and Collisions, Rotation of a Rigid Object about a Fixed Axis, Angular Momentum, Gravitation, Fluid Mechanics.

19. Course aims and outcomes:**A- Aims:**

1. Correctly use units, unit conversions and significant figures in measurements and calculations, and distinguish between Metric and English system of units.
2. Apply kinematic equations to calculate distance, time or velocity under the conditions of constant acceleration including free fall.
3. Recognize the difference between scalar and vector quantities, and express vectors in component form. Add two or more vectors together.
4. Apply kinematic equations and vector methods to solve problems involving objects projected horizontally and at an angle.
5. Apply Newton's laws, free-body diagrams and vector methods to solve one and two-dimensional problems related to objects in equilibrium and accelerating objects including objects in uniform circular motion. Forces include gravitational force, spring force (Hooke's Law), friction, normal force, tension and buoyant force.
6. Solve problems based on the work-energy theorem and conservation of energy including frictional energy loss, kinetic energy, gravitational and spring potential energy.
7. Solve one and two dimensional problems involving elastic and inelastic collisions.
8. Solve problems related to centripetal force, moment of inertia and angular momentum.
9. Use Archimedes' principle, Pascal's Law and the Bernoulli equation to solve fluid problems.

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

- Students will be able to analyze and solve problems related to a variety of physical systems and situations.
- Students will be able to identify displacement, distance traveled, speed, velocity, and acceleration in various scenarios
- Students will be able to calculate the motion of a particle in one, or two dimensions, subject to forces.
- Students will be able to determine the net force acting on an object and the acceleration it produces.
- Students will be able to calculate the motion of particles using the conservation of energy to discuss real life situations.
- Students will be able to analyze the collision of two particles using the conservation of momentum.
- Students will be able to recognize the difference between the scientific and ordinary definitions of work. Understand work-energy theorem, conservation of energy, and power.
- Students will be able to explain centripetal force, moment of inertia and angular momentum. Understand how angular momentum conservation plays an important role certain real life situations.
- Students will be able to apply Archimedes' principle and the Bernoulli Equation to evaluate flow through a system in real life situations.
- Students will be able to determine the pressure in a fluid.

20. Topic Outline and Schedule:

Topic	Week	Instructor	Achieved ILOs	Evaluation Methods	Reference
1. INTRODUCTION	1	Eman Al-Absi	Use units, unit conversions and significant figures correctly in all problems in the course.	Homework, Quiz	Physics for Scientists and Engineers with Modern Physics", 7th Edition by John W. Jewett, Raymond A. Serway.
2. CHAPTER TWO: Vectors	2		Express vectors in component form. Add two or more vectors together	Quiz	
3. CHAPTER THREE: Motion in 1-D	3,4		Calculate the motion of a particle in one dimension	Quiz	
4. CHAPTER FOUR: Motion in 2-D	5		Calculate the motion of a particle in two dimensions, subject to forces.	Homework, Quiz	
5. CHAPTER FIVE: Force and Motion	6,7		Determine the net force acting on an object and the acceleration it produces.	Quiz	
6. CHAPTER SIX: Energy and Work	8,9		Calculate the motion of particles using the conservation of energy.	Quiz	
7. CHAPTER SEVEN: Momentum and Collision	10		Analyze the collision of two particles using the conservation of momentum.	Homework, Quiz	
8. CHAPTER EIGHT: Rotational Motion and The Law Of Gravity	11		Explain centripetal force, moment of inertia and angular momentum. Understand how angular momentum conservation plays an important role certain real life situations.	Quiz	
9. CHAPTER NINE: Rotational Equilibrium and Rotational Dynamics	12		Determine the conditions needed for dynamic equilibrium	Quiz	

21. Teaching Methods and Assignments:

Development of ILOs is promoted through the following teaching and learning methods:

Lecture by instructor, Class discussion conducted by the instructor, teaching with using data show, textbook assignments, use of whiteboard by instructor as aid in teaching, use of diagrams, tables, graphs, and charts by instructor in teaching

22. Evaluation Methods and Course Requirements:

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

Exams, quizzes, home works and assignments

23. Course Policies:

A- Attendance policies:

As you will see below, attendance counts as a small portion of your final grade in this class. These are basically free points that I am offering as an incentive for you to learn the good habit of attending class. If you miss more than 5 classes, you must drop the course, or receive an F. A sign-in sheet or equivalent will be used at each class session and each student is responsible to sign in.

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

Failure to attend class on the day an assignment is given or due does not mean that you may turn it in late without penalty. There will be no makeup quizzes, though your lowest quiz score for the semester will be dropped. If you miss a scheduled test, then you will be given a 0 for that test unless you give an acceptable excuse within three days. Heaven forbid that you have a catastrophe this semester that keeps you out of class, but if you do, please contact the office of the Associate Dean of Students to get it documented. After I am notified by the Dean's office I will make the final determination whether you get an excused absence or a zero for any late or missed material.

C- Honesty policy regarding cheating, plagiarism, misbehavior:

Cheating and plagiarism will not be tolerated at all. If any work you turn in is found not to be entirely your own, unless previously permitted, the work will not be accepted and no credit will be awarded for the work. A repeat offense will be considered for automatic failure. Cheating includes getting or giving *unauthorized* help for any class assignments, as well as "wondering eyes" – gazing at someone else's paper during a quiz or exam. Use of unauthorized notes during a test is also cheating. This calls attention to the use of some of the newer, high capacity alphanumeric memory calculators or of cell phones. If you use such a calculator, or any device of similar capability, activation of the alphanumeric memory in any form will be treated as cheating. Plagiarism is using material from any source, even the internet, without giving credit.

D- Grading policy:

- **Attendance and Class participation:** 5 marks
- **Home works:** 5 marks
- **Quizzes:** 10 marks
- **Midterm exam:** 30 marks
- **Final exam:** 50 marks

Total: 100 marks

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

You can use other references available in the library or web sites to improve your personal skills in understanding and solving problems

24. Required equipment:

Whiteboard, Whiteboard marker, Data show

25. References:

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

"Physics for Scientists and Engineers with Modern Physics", 7th Edition by John W. Jewett, Raymond A. Serway.

B- Recommended books, materials, and media:

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26. Additional information:

Name of Course Coordinator: Eman Al-Absi Signature: ----- Date: -----

Head of curriculum committee/Department: ----- Signature: -----

Head of Department: Dr. reyad Manasrah Signature: -----

Head of curriculum committee/Faculty: Prof. Tariq Al-Najjar Signature: -----

Dean: ----- -Signature: -----

Copy to:

Head of Department
Assistant Dean for Quality Assurance
Course File