| Philadelphia University | PHILADELPHIA | Approval date: |
|----------------------------|-----------------------|-------------------|
| Faculty | UNIVERSITY | Issue: |
| Department | THE WAY TO THE FUTURE | Credit hours |
| Academic year | Course Syllabus | Bachelor |

Course information

| Course# | Course title | | Prerequisite | |
|--------------------------|--------------|---------------------|----------------------------|--------|
| 0211101 | | General Physics (1) | | |
| Course type | Section | Instructor | Class time | Room # |
| □ University Requirement | 1 | Mustafa Al-Zyout | Sun. & Tue.: 09:45 – 11:15 | 21009 |
| ☑ Faculty Requirement | 2 | Mustafa Al-Zyout | Mon. & Wed.: 09:45 – 11:15 | 21009 |
| Major Requirement | 4 | Mariam Al-qderat | Sun. & Tue.: 12:45 – 14:15 | 9314 |
| □ Elective | 5 | Mariam Al-qderat | Sun. & Tue.: 14:15 – 15:45 | 21005 |
| ⊠ Compulsory | 6 | Mariam Al-qderat | Mon. & Wed.: 12:45 – 14:15 | 9314 |

Instructor Information

| Name | Office No. | Phone No. | Office Hours | E-mail |
|------------------|---------------|-------------------------|-------------------------------|------------------------------|
| Mustafa Al-Zyout | 816 | 06 4779000 ext. 2341 | Sun. & Tue.: 11:15 – 12:45 | - mzyout@philadelphia.edu.jo |
| | | | Mon, &Wed.: 12:45 – 14:15 | |

Learning Resources

| Course textbook | Raymond A. Serway and John W. Jewett, Physics for Scientists and Engineers , Cengage Learning; 9 th Edition, 2014. |
|-----------------------|--|
| Supporting References | D. Halliday, R. Resnick and <i>Jearl</i> Walker, Fundamentals of Physics , John Wiley and Sons (WIE); 10th edition , 2013. |
| | Roger A. Freedman and , Hugh D. Young, University Physics With Modern Physics , Pearson, ; 14th edition , 2015. |

Assessment Methods and Grade Distribution

| Assessment Methods | Grade Weight | Assessment Time (Week No.) | Link to Course Outcomes |
|-----------------------|-----------------|-------------------------------|----------------------------|
| Mid Term Exam | 30% | 8 | |
| Various Assessments * | 30% | 2-15 | |
| Final Exam | 40% | 16 | |
| Total | 100% | | |

Meetings and subjects timetable

| Week | Торіс | Learning Material |
|------|---|----------------------|
| 1 | <u>Vectors</u> Coordinates systems and frames of reference, vectors and scalars, some properties of vectors, addition and subtraction of vectors, components of a vector and unit vectors, the scalar product of two vectors, the vector product. | Ch.03 |
| 2 | <u>Vectors, Cont.</u> Coordinates systems and frames of reference, vectors and scalars, some properties of vectors, addition and subtraction of vectors, components of a vector and unit vectors, the scalar product of two vectors, the vector product. | Ch.03 |
| 3 | <u>Kinematics in one dimension</u> Displacement, Average velocity, Instantaneous velocity, average acceleration, instantaneous acceleration, one dimensional motion with a constant acceleration, free falling objects, | Ch.02 |
| 4 | Kinematics in two and three dimensions Vector kinematics and projectile motion, applications. | Ch.04 |
| 5 | The Laws of Motion The concept of force, Newton's first law and inertial frames, inertial mass, Newton's second law, weight and the force of gravity, normal force, Newton's third law, | Ch.05 |
| 6 | <u>The Laws of Motion, Cont.</u> Free body diagrams, friction force, some applications of Newton's laws, uniform circular motion and non-uniform circular motion, applications. | Ch.05 +Ch.06 |
| 7 | <u>Work and Energy</u> Introduction, work done by a constant force, and a variable force, kinetic energy and the work energy theorem, mechanical power, applications. | Ch.07 |
| 8 | <u>Conservation of Energy</u> Conservative and non-conservative forces, Potential energy, Mechanical energy and Its conservation, Problem solving using conservation of mechanical energy, conservation of energy principle, Energy conservation with dissipative forces, applications. | Ch.08 |
| 9 | Linear Momentum Momentum and Its relation to force, Conservation of momentum, Collisions and Impulse, Conservation of energy and momentum in Collisions, Elastic collisions in one-dimension, Inelastic collisions, | Ch.09 |
| 10 | Linear Momentum, Cont. Collisions in two or three dimensions, Central of mass (CM), Central of mass and translational motion, Applications. | Ch.09 |
| 11 | <u>Rotational Motion</u> Angular quantities, Vector nature of angular quantities, Constant angular acceleration, Torque, Rotational dynamics; Torque and rotational inertia, Solving Problems in Rotational Dynamics, | Ch.10 |
| 12 | <u>Rotational Motion, Cont.</u> Determining moments of Inertia, Rotational kinetic energy, Rotational plus translational motion; Rolling, Applications. | Ch.10 |
| 13 | <u>Angular Momentum; General Rotation</u> Angular momentum-objects rotating about a fixed axis, Torque as a vector, Angular momentum of a particle, Angular momentum and torque for a system of particles; | Ch.11 |
| 14 | Angular Momentum; General Rotation, Cont. General motion, Angular momentum and torque for a rigid object, Conservation of angular momentum, Applications. | Ch.11 |
| 15 | Static Equilibrium; Elasticity and Fracture Static equilibrium; Elasticity and fracture, Conditions for equilibrium, Solving statics problems, Stability and balance, Elasticity; Stress and Strain, Fracture, Applications. | Ch.12 |
| 16 | Final Exam | |

Course Polices

| Policy | Policy Requirements |
|---------------|--|
| Passing Grade | The minimum passing grade for the course is (50%) and the minimum |
| | final mark recorded on transcript is (35%). |
| | • Missing an exam without a valid excuse will result in a zero grade |
| | to be assigned to the exam or assessment. |
| Missing | • A Student who misses an exam or scheduled assessment, for a |
| Exams | legitimate reason, must submit an official written excuse within a |
| | week from an exam or an assessment due date. |
| | • A student who has an excuse for missing a final exam should submit |
| | the excuse to the dean within three days of the missed exam date. |
| Attendance | The student is not allowed to be absent more than (15%) of the total hours |
| | prescribed for the course, which equates to six lectures days (M, W) and |
| | seven lectures (S,T,R). If the student misses more than (15%) of the total |
| | hours prescribed for the course without a satisfactory excuse accepted by |
| | the dean of the faculty, s/he will be prohibited from taking the final exam |
| | and the grade in that course is considered (zero), but if the absence is due |
| | to illness or a compulsive excuse accepted by the dean of the college, then |
| | withdrawal grade will be recorded. |
| Academic | Philadelphia University pays special attention to the issue of academic |
| Honesty | integrity, and the penalties stipulated in the university's instructions are |
| | applied to those who are proven to have committed an act that violates |
| | academic integrity, such as: cheating, plagiarism (academic theft), |
| | collusion, and violating intellectual property rights. |