|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|

|  |
| --- |
| **ISHIK UNIVERSITY FACULTY OF EDUCATION Department of PHYSICS EDUCATION,2017-2018 Spring Course Information for PHYS 101 GENERAL PHYSICS I** |

|  |  |
| --- | --- |
| **Course Name:** | GENERAL PHYSICS I |
|

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **Code** | **Course type** | **Regular Semester** | **Theoretical** | **Practical** | **Credits** | **ECTS** |
| PHYS 101 | 2 | 1 | 2 | 2 | 3 | 5 |

 |
| **Name of Lecturer(s)-Academic Title:** | Azad Mohammed Ali - Bestoon T. Mustafa - Idress Harki - Ilham Ibrahim - MScJunaid Kameran - MScPishtiwan Akram - MA |
| **Teaching Assistant:** | - |
| **Course Language:** | English |
| **Course Type:** | Non-area Elective |
| **Office Hours** | Sun. and Mon. 15:30-16:30 |
| **Contact:** | Email:azad.mohammed@ishik.edu.iq bestoon.mustafa@su.edu.krd edress.nury@su.edu.krd ilham.ibrahim@ishik.edu.iq junaid\_kameran@yahoo.com pishtiwan.akram@ishik.edu.iq Tel:07504545486 07510226436 +9647504461329 07508610459 07508965170 07501203321  |
| **Teacher's academic profile:** | Bsc in Mechanical Engineering/ALMustansira University/Baghdad Msc in Mechanical Engineering/ALMustansira University/Baghdad PhD in Mechanical Engineering/Salahadden University/Hawler Bsc-2008-Salahaddin University Msc- 2014- Sheffield university Full Name: Ilham Ibrahim Muhammed Place of Birth: Sulaimani-kurdistan-Iraq Nationality: Iraqi Kurdish Permanent Address Iraq/ sulaimani / Ibrahim ahmad Tel No. Cell Phone: +964 770 223 57 99 +964 750 861 04 59 E-Mail Address: ilhamswren@yahoo.com ilhamswren@gmail.com Master degree (MSc) in structure and infrastructure engineering 2014. . Asst. Lecturer  |
| **Course Objectives:** | To understand the general relationships among position, velocity, and acceleration for the motion of a particle along a straight line, the special case of motion with constant acceleration. To be able to add, subtract, and resolve displacement and velocity vectors. To understand the general motion of a particle in two dimensions so that, given functions x(t) and y(t) which describe this motion, the motion of projectiles in a uniform gravitational field. To use Newton’s laws of motion to solve advanced problems involving the dynamic motion of classical mechanical systems. To understand the significance of the coefficient of friction, the definition of work, including when it is positive, negative or zero, the concept of a conservative force, the concepts of mechanical energy and of total energy, conservation of energy, the technique for finding center of mass, the analogy between translational and rotational kinematics. |
| **Course Description (Course overview):** | Physics and Measurement, Motion in One Dimensions, Vectors, Motion in Two Dimensions, The Laws of Motion, Circular Motion and Other Applications of Newton`s Law, Work and Kinetic Energy, Potential Energy and Conservation of Energy, Linear Momentum and Collisions, Rotation of a Rigid Object About a Fixed Axis, Oscillatory Motion, Wave Motion, Sound Waves, The Nature of Light and the Laws of Geometric Optics, Laboratory includes some basic Physics experiments. |
| **COURSE CONTENT**

|  |  |  |  |
| --- | --- | --- | --- |
| **Week** | **Hour** |               **Date**               | **Topic** |
| **1** | 2 | 19-23/11/2017 | Units and measurements |
| **2** | 2 | 26-30/11/2017 | Coordinating Systems 1 |
|  |  |  |  |
| **3** | 2 | 3-7/12/2017 | Coordinating Systems 2 |
| **4** | 2 | 10-14/12/2017 | Vectors And Scalars |
|  |  |  |  |
| **5** | 2 | 17-21/12/2017 | Distance-displacement And Speed –Velocity |
| **6** | 2 | 24-28/12/2017 | ? |
|  |  |  |  |
| **7** | 2 | 31/12/2017-4/1/2018 | New years\\\\\\\' |
| **8** | 2 | 7-11/1/2018 | Free Falls / Acceleration |
|  |  |  |  |
| **9** | 2 | 14-18/1/2018 | Newton\\\\\\\'s Laws of Motion |
| **10** | 2 | 21-25/1/2018 | Midterm Exam |
|  |  |  |  |
| **11** | 2 | 28/1-1/2/2018 | Kinetic and potential energy |
| **12** | 2 | 4/2-8/2/2018 | Friction |
|  |  |  |  |
| **13** | 2 | 11/2-15/2/2018 | Work |
| **14** | 2 | 18/2-22/2/2018 | Momentum (linear momentum and angular momentum) |
|  |  |  |  |
| **15** | 2 | 25/2-1/3/2018 | Review |
| **16** | 2 | 4-8/3/2018 | Final Exam |
|  |  |  |  |

 |
| **COURSE/STUDENT LEARNING OUTCOMES**

|  |  |
| --- | --- |
|  |  |
| **1** | Units and Measurements |
| **2** | Vector and scalar quantities |
| **3** | Kinematics and Newton’s laws of motion |
| **4** | Work and energy |
| **5** | Rotation of rigid bodies about a fixed axis |

 |
| **COURSE'S CONTRIBUTION TO PROGRAM OUTCOMES**(Blank : no contribution, I: Introduction, P: Profecient, A: Advanced )

|  |  |  |
| --- | --- | --- |
|  | **Program Learning Outcomes** | **Cont.** |
| **1** | Demonstrate the ability to perform theoretical calculations in basic areas of physics (Mechanics, Electricity & Magnetism, and Modern Physics). | P |
| **2** | Demonstrate quantitative and qualitative analysis of physical problems. | P |
| **3** | Proficient with equipment and procedures used to acquire and analyze data of physical phenomena through performance in laboratory activities. | P |
| **4** | Perform analysis and calculations based on experimental data, draw and present valid conclusions, and process and visualize their data. | P |
| **5** | Report in written format the results of their calculations, research projects, and reading of technical literature. | P |
| **6** | Create and effectively present on oral report on the results of their calculations, research projects, and reading of technical literature. | P |
| **7** | Know about their career options, what skills and experiences are required for those careers, and are able to develop a resume that advances them towards their career goals. | P |

 |
| **Prerequisites (Course Reading List and References):** | Sears and Zemansky\\\\\\\'s university physics with modern physics by Young, H. D., Freedman, R. A., & Ford, L. (13 edition)- 2012 |
| **Student's obligation (Special Requirements):** | Attending 80% of the course is mandatory. Participation in class activities is encouraged. Students are responsible for materials given in class. Students are responsible for assignments. Students must bring their own calculators. |
| **Weekly Laboratory/Practice Plan:** |

|  |  |  |  |
| --- | --- | --- | --- |
| **Week** | **Hour** |               **Date**               | **Topics** |
| 1 | 2 | 19-23/11/2017 | Not started |
| 2 | 2 | 26-30/11/2017 | INTRODUCTORY AND LAB. INSTRUCTIONS |
|  |  |  |  |
| 3 | 2 | 3-7/12/2017 | Determination of Balance of Forces with Cosine Theory |
| 4 | 2 | 10-14/12/2017 | Determination of the Spring Constant (Hooke’s Law) |
|  |  |  |  |
| 5 | 2 | 17-21/12/2017 | Determination of the Coefficient of Static and Kinetic Friction |
| 6 | 2 | 24-28/12/2017 | Christmas holiday |
|  |  |  |  |
| 7 | 2 | 31/12/2017-4/1/2018 | New years\\\\ |
| 8 | 2 | 7-11/1/2018 | Simple pendulum to calculate Acceleration due to Gravity ‘g’ |
|  |  |  |  |
| 9 | 2 | 14-18/1/2018 | Determination of Tension on a String with Conical Pendulum |
| 10 | 2 | 21-25/1/2018 | Midterm Exam |
|  |  |  |  |
| 11 | 2 | 28/1-1/2/2018 | Determination of the Initial Velocity in Projectile Motion |
| 12 | 2 | 4/2-8/2/2018 | Measuring the Speed of Sound |
|  |  |  |  |
| 13 | 2 | 11/2-15/2/2018 | Determining the density of water |
| 14 | 2 | 18/2-22/2/2018 | Review |
|  |  |  |  |
| 15 | 2 | 25/2-1/3/2018 | Presentation |
| 16 | 2 | 4-8/3/2018 | Final Exam |
|  |  |  |  |

 |
| **Course Book/Textbook:** | "Fundamentals of Physics", by Halliday, Resnick and Walker, Ninth Edition, John Wiley & Sons, Inc (2011) |
| **Other Course Materials/References:** | PHYWE official web. |
| **Teaching Methods (Forms of Teaching):** | Lectures, Practical Sessions, Excersises, Presentation, Self Evaluation, Project |
| **COURSE EVALUATION CRITERIA**

|  |  |  |
| --- | --- | --- |
| **Method** | **Quantity** | **Percentage (%)** |
| Attendance | 1 | 5 |
| Quiz | 1 | 10 |
| Homework | 1 | 5 |
| Midterm Exam(s) | 1 | 25 |
| Presentation | 1 | 5 |
| Laboratory | 1 | 10 |
| Final Exam | 1 | 40 |
| **Total** | **100** |
| **Examinations:**Essay Questions, Fill in the Blanks, Short Answers |  |  |

 |
| **Extra Notes:** |
| **ECTS (ALLOCATED BASED ON STUDENT) WORKLOAD**

|  |  |  |  |
| --- | --- | --- | --- |
| **Activities** | **Quantity** | **Duration (Hour)** | **Total Work Load** |
| Course Duration (Including the exam week: 16x Total course hours) |  |  | 0 |
| Hours for off-the-classroom study (Pre-study, practice) |  |  | 0 |
| Assignments Mid-terms |  |  | 0 |
| Final examination | 1 | 2:00 | 2 |
| Other |  |  | 0 |
| **Total Workload** | **2** |
| **ECTS Credit (Total workload/25)** | **0.08** |

 |

**Peer review**

|  |  |  |
| --- | --- | --- |
| Signature: | Signature: | Signature: |
| Name: | Name: | Name: |
| Lecturer                                                                       | Head of Department                                                         | Dean |

 |