



**HASAN KALYONCU UNIVERSITY**  
**Faculty of Engineering**  
**Course Description Form**

|                                  |               |                         |               |             |
|----------------------------------|---------------|-------------------------|---------------|-------------|
| <b>COURSE:</b> General Physics I |               |                         |               |             |
| <b>CODE:</b> PHYS101             |               | <b>SEMESTER:</b> FALL   |               |             |
| <b>LANGUAGE:</b> ENGLISH         |               | <b>TYPE:</b> COMPULSORY |               |             |
| <b>PRE-REQUISITES:-</b>          | <b>THEORY</b> | <b>PRACTICAL</b>        | <b>CREDIT</b> | <b>ECTS</b> |
| <b>CO-REQUISITES:-</b>           |               |                         |               |             |
| <b>WEEKLY HOURS:5</b>            | 3             | 2                       | 4             | 6           |

**CONTENT OF THE COURSE:**

Definition of accuracy and significance of results in a measurement. Expressing vector quantities using different methods. Description of motion in one and multi-dimensions and their application to various problems. Introduction of Newton's laws of motion and observation laws, and their applications to various problems. Description of rotational motion and their applications specifically rigid bodies in static equilibrium. Using mechanical laws to describe planetary motion and fluids mechanics.

**OBJECTIVE OF THE COURSE:**

The main objective of this course is to help students to develop an understanding of fundamental physical concepts and principles related to mechanics and an ability to use these concepts and principles to analyze and solve broad range of quantitative problems in the real world. This course also will teach student how to communicate scientific ideas effectively.

**WEEKLY SCHEDULE**

| <b>Week</b> | <b>Topics</b>                           |
|-------------|---|
| 1           | Units, Physical Quantities, and Vectors |
| 2           | Units, Physical Quantities, and Vectors |
| 3           | Motion along a straight line            |
| 4           | Motion along a straight line            |
| 5           | Motion in two or three dimensions       |
| 6           | Motion in two or three dimensions       |
| 7           | Newton's Laws of Motion                 |
| 8           | MIDTERM                                 |
| 9           | Work and Kinetic Energy                 |
| 10          | Work and Kinetic Energy                 |
| 11          | Potential Energy and Energy             |
| 12          | Potential Energy and Energy             |
| 13          | Momentum, Impulse, and Collisions       |
| 14          | Momentum, Impulse, and Collisions       |

**TEXTBOOK:**

SEARS AND ZEMANSKY'S University Physics with Modern Physics, 14th Ed. by Young and Freedman, Pearson (2016).

**REFERENCE BOOKS:**

-

|                               |                       |
|-------------------------------|-----------------------|
| <b>INSTRUCTOR(S):</b>         | Dr. Özden Demircioğlu |
| <b>FORM PREPARATION DATE:</b> | 25.11.2019            |

|  | <b>PO1</b> | <b>PO2</b> | <b>PO3</b> | <b>PO4</b> | <b>PO5</b> | <b>PO6</b> | <b>PO7</b> | <b>PO8</b> | <b>PO9</b> | <b>PO10</b> | <b>PO11</b> |
|--|------------|------------|------------|------------|------------|------------|------------|------------|------------|-------------|-------------|
| <b>LO1</b>   | 1          | 1          | 1          | 0          | 0          | 0          | 0          | 0          | 0          | 0           | 0           |
| <b>LO2</b>   | 3          | 3          | 3          | 0          | 0          | 0          | 0          | 0          | 0          | 0           | 0           |
| <b>LO3</b>   | 1          | 3          | 1          | 0          | 0          | 0          | 0          | 0          | 0          | 0           | 0           |
| <b>LO4</b>   | 1          | 1          | 0          | 3          | 0          | 0          | 0          | 0          | 0          | 0           | 0           |
| <b>LO5</b>   | 1          | 1          | 0          | 0          | 0          | 0          | 0          | 0          | 0          | 0           | 0           |
| PO: Program Outcomes   LO: Learning Outcomes<br>Values: 0: None   1: Low   2: Medium   3: High |            |            |            |            |            |            |            |            |            |             |             |

**LEARNING OUTCOMES OF THE COURSE:**

**LO1:** Learning significance and accuracy concepts in a measurement.

**LO2:** Applying knowledge of math, science, and engineering to everyday mechanical physics problems

**LO3:** Learning how to communicate and share scientific ideas.

**LO4:** Learning concept of motion and its application to one- and multi-dimension problems.

**LO5:** Application of Newton's laws and conservation laws to broad range of problems including planetary motion and fluid mechanics.

**CONTRIBUTION OF THE COURSE TO VOCATIONAL EDUCATION**

Through this course, students learn about the forces that affect objects and the analysis of these forces and create a basic infrastructure for their static and dynamic courses, which are important for the building design in the program.