

PHYS 151 – UNIVERSITY PHYSICS I (3 credits)

Description

An introduction to the fundamental principles of physics for science majors will be taught in this course. Basic concepts of mechanics, sound, electricity, magnetism and light will be learned.

Textbook

H. Young, University Physics, 11th Ed., Addison Wesley

Reference

Library collection of books dealing with physics.

Goals

To study the fundamental laws of physics and the application of them in practical exercises.

Topics

(a) Models, measurements, vectors, motion along a straight line, motion in a plane. (8h, week: 1-3)

Textbook chapters: 1, 2, 3.

Homework: Chapter 1: 37, 40, 43, 47, 50, 52, 55. Chapter 2: 3, 7, 14, 19, 21, 34, 39, 42, 49.

Chapter 3: 9, 10, 12, 19, 24, 29, 34.

(b) Newton's laws of motion. Applications of Newton's laws. (8h, week: 3-6)

Textbook chapters: 4, 5

Homework: Chapter 4: 4, 9, 11, 17, 20, 23, 26, 29, 39. Chapter 5: 2, 3, 13, 15, 16, 19, 25, 27, 32, 39.

(c) Work and energy. Conservation of energy. (7h, week: 7-9)

Textbook chapters: 6, 7.

Homework: Chapter 6: 1, 3, 9, 11, 16, 26, 43, 45. Chapter 7: 1, 9, 13, 17, 31, 42.

(d) Momentum and impulse. Rotational motion. (7h, week: 10-13)

Textbook chapter: 8

Homework: 1, 7, 15, 17, 25, 31, 33

(e) Gravitation, periodic motion. (5h, week: 13,14)

Textbook chapter: 12 (Only sections 1-5)

Homework: 1, 5, 7, 13, 16.

Evaluation

Attendance is mandatory and class participation encouraged. A high number of absences, more than 2 without any reasonable reason, will contribute negatively with 10% to the final grade.

The homework presented by the student will be taken into account as positive if it is handed in at time. This work will be graded.

Students must take midterm and final exams. They must complete the three parts of the course successfully.

The percentage of each in terms of the final grade will be:

Homework	20%
Midterm exams	70%
Attitude and attendance	10%