

## PHYS 152 – UNIVERSITY PHYSICS II (3 credits)

### Description

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

### Textbook

H. Young, University Physics, 12th Ed., Addison Wesley

### Reference

The library collection of books dealing with physics.

### Goals

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

### Topics (tentative)

#### A. Temperature and Heat, Wave Motion, Sound.(8h, week:1-3)

Textbook Chapters: 17, 15, and 16 (excluding sections: 4 and 6 )

Homework: 17 (3,5,11,13,29,33,44,45 ), 15 (3,5,9,10,20), and 16 (7,9,11,14,17,19 )

#### B. Electrostatic, Coulomb's Law, Capacitance, Ohm's Law, Kirchoff's Law.(8h, week:3-6)

Textbook chapters: 21, 23, 24 (sections 1-3), 25 (sections 1-5), and 26.

Homework: 21 (2,5,7,13,17,18,20, 25,27), 23 (7,12,17,27,29,39), 24 (10, 14, 15), 26 (5, 6, 9,19-22).

#### C. Magnetism, Magnetic Field of a Moving Charge, Inductance.(7h, week:7-9)

Textbook chapters: 27, 28, and 29.

Homework: 27 (6, 12, 13,19, 23, 30), 28 (3, 8, 16,).

#### D. Electromagnetic Waves, Light, Optics, Interference and Diffraction.(7h, week:10-13)

Textbook chapters: 33, 34.

Homework: 33 (34, 36), 34 (3, 7, 12, 13)

#### E. Relativity, Atomic Structure, Particle Physics and Cosmology.(5h, week:13,14)

Groups of students will prepare a written report on one of these topics, and present it in class.

### Evaluation

Attendance is mandatory and class participation encouraged. A high number of absences, more than 2 without any justified 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. Students must complete the three parts of the course successfully.

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

<i>Homework</i>	<i>10%</i>
<i>Midterm exams</i>	<i>60%</i>
<i>Presentation and written Report on point E</i>	<i>20%</i>
<i>Attitude and attendance</i>	<i>±10%</i>