01.07.2019

Bar-Ilan University

Computerized Physics Lab
86-232-01

Lecturer: Dr. Noa Koartzweil
Course type: Laboratory
Date: 2018-2019 **semester:** B **weekly hours:** 3

A. Aim of course:

The purposes of Laboratory are to give hands-on experience with some of the experimental bases of physics and to deepen the understanding of the relations between experiment and theory.

B. Course format:

In the Physics Laboratory students perform 12 experiments in semester. The experiments deal with Optics, Solid State, Atomic, Electromagnetic and Electronics. The course emphasizes measurement and data analysis techniques and preparation of Laboratory reports.
The last month of the semester is dedicated to final project. Students choose an experiment, plan and build the setup and make the measurements.

C. Course content:

Experiments:

- Driven pendulum
- Magnetic field
- Ferromagnetism
- Electromagnetic induction
- RLC circuit
- Principles of radio
- Diffraction of light
- Photovoltaic cell
- Optical communications
- Photoelectric effect
- Sound
- Atoms - energy levels and spectra

D. Course mandatories:

Weekly laboratory report.

E. Grading:

Final project: 40%; Laboratory reports: 60%

F. Textbooks and supplementary reading:

- Experimental Lab Guides - available in: physicslab.biu.ac.il.
- Yaakov Kraftmakher, “Experiments and Demonstrations in Physics. Bar-Ilan Physics Laboratory”, World Scientific, 2007.