



LABORATORY COURSES

Phys 1601L	PHYSICS LAB-I	(CR3)
Courses	Phys 1001, 1002	

Objectives

To prepare students in performing experiments related to mechanics, waves and optics.

Syllabus

Modulus of Rigidity by Static methods (Barton's Apparatus) and by Maxwell needle or by solid cylindrical rod, To find surface tension of water by capillary tube method/Jaeger's method, To study the damping features of an oscillating system, Measurement of viscosity of liquid by Stoke's / Poiseulli's method, To determine the value of "g" by compound pendulum / Kater's Pendulum, To study the dependence of Centripetal force on mass, radius, and angular velocity of a body in circular motion, Investigation of phase change with position in traveling wave and measurement of the velocity of sound by C.R.O., Determination of moment of inertia of a solid/hollow cylinder and a sphere etc, Spring constant by static and dynamic methods, To measure the moments of inertia of different bodies, To determine surface tension by capillary rise, To determine elastic constant by spiral spring and coupled pendulum, The study of harmonic oscillation of helical springs connected in parallel and series, Laws of gyroscope, Measurement of speed of sound in air, Interference and diffraction of water waves with ripple tank, Interference of light by Fresnel biprism, Study of the diffraction intensity using double slit system. To determine Horizontal/Vertical distance by Sextant, The determination of wavelength of Sodium -D lines by Newton's Ring, The determination of wavelength of light/laser by Diffraction grating, Determination of wavelength of sodium light by Fresnel's bi-prism, The determination of resolving power of a diffraction grating, The measurement of specific rotation of sugar by Polarimeter and determination of sugar concentration in a given solution, To study the combinations of harmonic motion (Lissajous figures), To study the parameters of waves (Beats phenomenon)

(At least eight experiments must be performed by individual department of affiliated colleges covering all subject areas of the lab course.)

Recommended Books

1. *Physics laboratory experiments* by Jerry D. Wilson, Cengage Learning (2014)
2. *General Physics Laboratory I Experiments* by Kapila Clara Castoldi, Kendall Hunt, (2015)
3. *Physics Lab Experiments* by Matthew French, Mercury Learning & Information, (2016)
4. *Experiments And Demonstrations In Physics: Bar-ilan Physics Laboratory* by Kraftmakher Yaakov, World Scientific (2014)