## PH1130 Modern Physics Laboratory Experiments

| Lab Experiment | Brief Description |
|---|---|
| 1. Interference & Diffraction | • Study the wave nature of light<br>• Explain constructive and destructive interference<br>• Distinguish patterns produced by lasers of different wavelengths passing through: Singles slit and Double slit<br>• Using Huygens's principle and a diagram explain how light passing through single- and double-slits forms dark and bright fringes |
| 2. Speed of Light/Polarization | • Learn how to use an oscilloscope<br>• Develop basic understanding of the usage of optical fiber and its application to measure the speed of light.<br>• Studying Malus's law for light transmission through two polarizing filters. |
| 3. Planck's Constant | The purpose of this lab experiment is to determine Planck's constant using two different methods as follows:<br>• Using Light Emitting Diodes of different colors in an RC Circuit<br>• Using Light Emitting Diodes of different colors in a DC circuit |
| 4. Brightness and Distance; Black Body Radiation | • Study how light brightness depends on the distance source-detector<br>• Explore Stefan-Boltzmann's law for blackbody radiation. |
| 5. Atomic Spectra | The purpose of this experiment is:<br>• Observe the discrete spectra of different elements<br>• Determine experimentally Riedberg's constant |