

# List of Experiments to be done in the Engineering laboratory

## P G Department of Physics NIT Srinagar

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**Subject: Physics Laboratory    Code: PHP 100    Credit: 01    Mid Term: End Term :: 40:60**

### 1) Civil Engineering

1. Determine the value of 'g' using bar Pendulum and Kater's Pendulum.
2. Determination of Young's modulus of elasticity by bending beam method.
3. Determination of absorption coefficient of a liquid or solution (water,  $\text{KMnO}_4$ ) with the help of a photovoltaic cell.
4. To study the variation of magnetic field along the axis of current carrying circular coil.
5. Determination of wavelength of monochromatic light source using newton's rings method and to demonstrate interference of light.

### 2) Mechanical Engineering/ Metallurgy & Materials Eng

1. Determine the value of 'g' using bar Pendulum and Kater's Pendulum.
2. Determination of refractive index ( $\mu$ ) of a glass prism by spectrometer using monochromatic light source.
3. Determination of refractive index ( $\mu$ ) of a liquid (water) by spectrometer using sodium vapour lamp.
4. Determination of Young's modulus of elasticity by bending beam method.
5. Determination of coefficient of viscosity of liquid by falling sphere method.

### 3) Metallurgical and Material Engineering/Chemical Engineering

1. Determination of Resistivity and band gap of a given semiconductor material (Si/Ge) using Four Probe method.
2. Determination of absorption coefficient of a liquid or solution (water,  $\text{KMnO}_4$ ) with the help of a photovoltaic cell.
3. Determination of Planks Constant ( $h$ ) using photo cell based on photoelectric effect.
4. Determination of Specific rotation of optically active substance by Polarimeter.
5. Determination of refractive index ( $\mu$ ) of a glass prism by spectrometer using monochromatic light source.

### 4) Electrical Engineering

1. Determination of Resistivity and band gap of a given semiconductor material (Si/Ge) using Four Probe method.
2. Determination of Specific Charge ( $e/m_e$ ) using magnetron Valve helical method.
3. To study I-V characteristics of a Solar Cell/ Junction diode/half wave and Full wave rectifier.
4. To study the Hall effect, Hall coefficient, carrier density and carrier mobility of a given semiconductor.
5. Determination of Planck's constant using photocell based on photoelectric effect.

### 5) Electronics and Communication

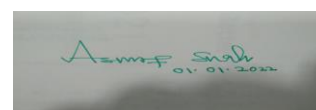
1. Determination of Resistivity and band gap of a given semiconductor material (Si/Ge) using Four Probe method.
2. Determination of Specific Charge ( $e/m_e$ ) using magnetron Valve helical method.
3. To study the Hall effect, Hall coefficient, carrier density and carrier mobility of a given semiconductor.
4. Determination of Planks Constant ( $h$ ) using photo cell based on photoelectric effect.
5. To Study the Characteristics of a G.M counter and the statistical nature of radioactive decay.

### 6) I.T/Computer Science

1. Determination of Resistivity and band gap of a given semiconductor material (Si/Ge) using Four Probe method.
2. Determination of refractive index ( $\mu$ ) of a glass prism by spectrometer using monochromatic light source.
3. To study the Hall effect, Hall coefficient, carrier density and carrier mobility of a given semiconductor.
4. Determination of Planks Constant ( $h$ ) using photo cell based on photoelectric effect.
5. To Study the Characteristics of a G.M counter and the statistical nature of radioactive decay.

**Optional Experiments (Branch-wise) shall be added in due course of time. The syllabi have all parameters same- Course name/Course code.**

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