

**1/4 B.Tech. SECOND SEMESTER  
ENGINEERING PHYSICS & ENGINEERING CHEMISTRY LAB**

**Course Code: EE2L1**

**Credits: 2**

**Internal assessment: 25 marks**

**Lab: 3 periods/week**

**Semester end examination: 50 marks**

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**Course objectives:**

To make student

- Knowledgeable in different concepts of physics such as Properties of Matter, Sound, Electricity, Optics and Electronics by explaining through experiments.
- Familiar with quality and parameters of water samples, useful for drinking effluent treatment and agriculture purposes.
- Aware of preparation of some plastic material and corrosion kinetics useful in industries.
- Know about the measuring the properties of the lubricants which are industrially useful.

**Course Outcomes:**

After completion of this course, the student will be able to

1. Understand mechanical properties and determine the rigidity modulus.
2. Comprehend optical phenomena such as interference and diffraction and calculate the wavelength and radius of curvature of planoconvex lens.
3. Acquire the knowledge of electronic principles and evaluate the time constant, energy band gap and Zener breakdown.
4. Determine parameters like hardness, alkalinity, turbidity and D.O of water sample which are useful for domestic, agriculture and industrial purposes.
5. Understand nature of the soil from PH values which is useful for agriculture.
6. Prepare plastics like Bakelite and understand their applications.

**ENGINEERING PHYSICS**

**ANY SIX OF THE FOLLOWING:**

**MECHANICS:**

1. Determine the rigidity modulus of the material of the wire using torsional Pendulum

**SOUND:**

2. Determine the velocity of sound by volume resonator method.

**OPTICS:**

3. Determine the wavelength of a source by normal incidence method using diffraction grating
4. Determine the radius of curvature of a plano convex lens by forming Newton's Rings
5. Determine the refractive index of the material of the prism (minimum deviation method) using spectrometer.

**ELECTRICITY AND MAGNETISM:**

6. Study the variation of magnetic field along the axis of a solenoid coil using Stewart – Gee's apparatus.
7. Determine the time constant for a C-R circuit.

**ELECTRONICS:**

8. Study of characteristic curves of a zener diode to determine its break down voltage
9. Determine band gap of semiconductor using a p-n junction diode.

10. Draw the characteristic curves and determine thermoelectric coefficient of a Thermistor.
11. Determine the Numerical Aperture of an optical fibre.
12. Determine the attenuation in the optical fibre.

### **ENGINEERING CHEMISTRY**

1. Determination of Total Hardness of water sample using EDTA.
2. Determination of Total alkalinity of water sample.
3. Determination of D.O in water.
4. Measurement of Turbidity of water sample.
5. pH of Soil and fruits.
6. Preparation of Phenol-Formaldehyde resin.