CS1L1   ENGINEERING PHYSICS AND CHEMISTRY LAB   Credits: 2
(Common to CSE & IT)
Required

Lecture: --   **Internal assessment: 25 marks**
Lab: 3 periods/week   **Semester end examination: 50 marks**

Course context and Overview: This course deals with elastic modulai, wavelength, RC circuit, zener diode, V-I Characteristics, semiconducgtor.

Prerequisites: -

Objectives:
1. Students will learn to determine elastic modulai.
2. Students will learn to determine wavelength of source using grating.
3. Students will know the procedure to determine radius of curvature of a lens
4. Students will learn the procedure to determine time constant of a RC circuit.
5. Students will have the knowledge about zener diode by drawing V-I Characteristics.
6. Students will learn to determine energy gap of a semiconductor.

Learning Outcomes:
The student will be able to
ENGINEERING PHYSICS LAB:
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.

ENGINEERING CHEMISTRY LAB
4. CO4) 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 in indust

PART -A
1. Determine the rigidity modulus of the material of the wire using torsional pendulum
2. Determine the velocity of sound by volume resonator method.
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.
6. Study the variation of magnetic field along the axis of a solenoid coil using Stewat – Gee's apparatus.
7. Determine the time constant for a C-R circuit.
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.

PART - B
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. Conductometric titration of Acid Vs Base.
6. PH of Soil and fruits.
7. Preparation of Phenol-Formaldehyde resin.
8. Determination of Corrosion rate of mild steel in the absence and presence of an inhibitor.
9. Determination of viscosity of heavy oil by RED WOOD Viscometer
10. Determination of Flash and fire point of a lubricating oil by Pensky-Martens apparatus.
11. Determination of Saponification value of Vegetable oil.
12. Determination of Acid number of a lubricant Oil.

NOTE: Any six practical's from physics and chemistry lab experiments.

Learning Resources
References:
1.Physics Lab Experiments by Maruthi Series.

2. Physics Lab Experiments JNTU Syllabus HiTech Publications.
3.Engineering Chemistry Lab Manual Shuchi Tiwari Scitech Publications
4. Engineering Chemistry I &II by Prof.K.AnjiReddy,Tulip Publications.
5.Lab Manual of Engineering Chemistry I & II ,I B.Tech JNTU Kakinada,VGS Publications