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Phy-01203 Physics Lab-II 1Credit Hr

Pre-requisites: Intermediate with Physics and Math or A level Physics

Objectives: To develop the understanding of students in measuring the thermal and optical parameters and to remove the fear of students to use various gadgets in laboratory

1. To determine thermoelectric emf and plot temperature diagram.
2. Determination of temperature coefficient of resistance of a given wire.
3. Determination of "J" by Callender – Barnis method.
4. The determination of Stefan's constant.
5. Investigation of phase change with position in traveling wave and measurement of the velocity of sound by C.R.O.
6. Calibration of thermocouple by potentiometer.
7. The determination of wavelength of Sodium –D lines by Newton's Ring.
8. The determination of wavelength of light/laser by Diffraction grating.
9. Determination of wavelength of sodium light by Fresnel's bi-prism.
10. The determination of resolving power of a diffraction grating.
11. The measurement of specific rotation of sugar by Polarimeter and determination of sugar concentration in a given solution.
12. To study the combinations of harmonic motion (Lissajous figures).
13. To study the parameters of waves (Beats phenomenon).
14. To determine the Thermal conductivity of good and bad conductors using Lee's and Searl's apparatus.
15. To determine the stopping potential by photo cell.

Note: Minimum number of practical to be performed is six.

Course outcome: students will be able to do graphical analysis, error calculations and determining of S.I. units.

Three experiments have to be performed before mid-term exams and three after mid-term.

Topics	No. of sessions
To determine thermoelectric emf and plot temperature diagram.	1+1
To study the parameters of waves (Beats phenomenon).	1+1
The measurement of specific rotation of sugar by Polarimeter and determination of sugar concentration in a given solution.	1+1
After mid-term	
Determination of temperature coefficient of resistance of a given wire	1+1
The determination of wavelength of light/laser by Diffraction grating	1+1
Measuring the speed of sound in free air	1+1

Course assessment:

- Mid-terms exams 15%
- Final-term exams 25%
- Lab performance 12%
- Lab reports 18%
- Viva voce 10%
- Sessional 20%

Method of teaching:

- Lectures.
- Tutorials
- Group activities and discussion

Resource Materials:

- Handouts.
- YouTube video lectures.