

Applied Physics Lab (AS – 1003)

Course Code	AS-1003	Credits-2	L –0, T-0, P- 2
Name of the Course	Applied Physics Lab		
Lectures to be Delivered	26 hours of Lab work (2 hours per week)		
Semester End Examination	Max. Marks: 50	Min. Pass Marks: 40	Maximum Time:3hrs
Continuous Assessment	Lab work 30%, Lab Record 25%, Viva/ Hands on 25%, Attendance 20%)	Max. Marks: 50	Min. Pass Marks: 25

Instructions for paper setter/ Candidates

Laboratory examination will consist of two parts:

- (i) Performing a practical exercises assigned by the examiner (25 marks).
- (ii) Viva-voce examination (25 marks)

Viva-voce examination will be related to the practicals performed / projects executed by the candidate related to the paper during the course of the semester.

List of Experiments

Note: (Two experiments to be done from each section, total number of experiments required to be performed 10 to be decided by the teacher concerned and availability of equipment)

Optics & Waves:

Section A

1. To find the wavelength of sodium light by Newton's rings experiment.
2. To find the wavelength of sodium light by Fresnel's Biprism experiment.
3. To find the wavelength of sodium light by using the phenomenon of diffraction of light at a straight edge
4. To find the wavelength of various colours of white light with the help of a plane transmission diffraction grating
5. To find the wavelength of sodium light by Michelson interferometer

Section B

1. To find the refractive index and cauchy's constant of a prism by using spectrometer
2. To find the resolving power of a telescope
3. To study the beam parameters of a helium-neon laser.
4. To find the specific rotation of sugar solution by using a polarimeter
5. To find the velocity of Ultrasonic Waves in a given liquid.
6. To find the specific rotation of sugar using polarimeter.

Electricity and Magnetism:

Section C

1. To compare the capacitances of two capacitors by De'sauty Bridge
2. To find the flashing & quenching potentials of Argon & also to find the capacitance of unknown capacitor
3. To find the temperature coefficient of resistance by using platinum resistance thermometer and Callender & Griffithbridge

Section D

1. To find the frequency of AC mains by using sonometer
2. To find the low resistance by Carrey – Foster's bridge.
3. To find the resistance of a galvanometer by Thomson's constant deflection method using a post office box.
4. To find the value of high resistances by Substitution method.
5. To find the value of high resistances by Leakage method.
6. To convert a galvanometer into an ammeter of a given range.
7. To study the variation of magnetic field with distance and to find the radius of coil by Stewart and Gee's apparatus.
8. To find the reduction factor of two turn coil of tangent galvanometer by using a copper voltmeter.

Modern Physics:

Section E

1. To find the value of e/m for electrons by Helical method.
2. To determine the charge of an electron by Millikan's oil drop method.
3. To find the ionization potential of Argon/ Mercury using a thyratron tube.
4. To find the value of Planck's constant by using a photoelectric cell.

Section F

1. To study the various crystal structures using Bragg Model.
2. To calculate the hysteresis loss by tracing a B-H curve for a given sample.
3. To determine the band gap of an intrinsic semiconductor by four probe method.
4. To Determine the resistivity of a semi-conductor by four probe method at different temperatures.
5. To determine the Hall co-efficient
6. To study the photovoltaic cell & hence to verify the inverse square law

SUGGESTED BOOKS:

1. Practical Physics – S.L. Gupta & V.Kumar
2. Advanced Practical Physics Vol. I & II – S.P. Singh
3. Practical physics for B.Sc I, II and III, C.L. Arora.