

HEMCHANDRACHARYA NORTH GUJARAT UNIVERSITY, PATAN

B. Sc. PHYSICS - SEMESTER – IV (PRACTICAL COURSE)

PROGRAMME CODE: SCIUG101

(Effective from June 2024 Under NEP – 2020)

LABORATORY EXPERIMENTS: MAJOR COURSE 2 Credit for Group A

COURSE CODE: SC23PMJDSCPHY401 Group A

TYPE OF COURSE	CREDIT	Marks	COURSE CODE
Major Discipline Core Course Practical (MJDSCP)	2 (Group A)	25 CCE + 25 SEE = 50	SC23PMJDSCPHY401
Teaching Hours			
Teaching Hours per Week: 08 Hours for 4 Credit practical (120 Hours per Semester)			
Teaching Hours per Week: 04 Hours for 2 Credit practical (60 Hours per Semester)			

LABORATORY EXPERIMENT COURSE: Group A

1. To determine wavelength of bright lines of Mercury light using Grating.
2. To Find out of Resolving Power of Telescope.
3. Study of X –ray diffraction using Powder pattern.
4. A Study of Decay of Temperature when body is allowed to cool (Thermocouple).
5. To study elliptically polarized light using Photocell and quarter wave plate.
6. To find out Activation energy of a Semiconductor. .
7. Numerical Analysis (Newton’s Forward and Backward Interpolation Formula)
8. To Find out The Resolving Power of Prism.
9. To determine wavelength of monochromatic light by Edser’s ‘A’ Pattern
10. Trapezoidal Simpson’s rule for Numerical Integration

Course Objectives:

- To gain practical knowledge by applying the experimental method to correlate with the Physics theory.
- To provide hands on experience with equipment such as, spectrometer, A pattern, quarter wave plate, Travelling Microscope, Telescope etc.
- To impart practical knowledge by performing experiments based on the principles of theory courses.
- To provide training how to analyze the experimental data and graphical analysis.
- To develop intellectual communication skills and discuss the basic principles of scientific concepts in the group.

Course Outcome: Learning Outcomes:

By the end of the course, the students will be able to,

- Gains practical knowledge of experimental methods and Get sufficient knowledge about equipments like, spectrometer, A pattern, quarter wave plate, Travelling Microscope, Telescope etc.
- Determine wavelength, resolving power, electrical and optical properties.
- Get sufficient knowledge by performing experiments based on the principles of theory course.
- Analyze and understands the experimental data and graphical analysis.
- Develop the communication skills by discussing basic principles of scientific concepts in the group.

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LABORATORY EXPERIMENTS: MAJOR COURSE 2 Credit for Group B

COURSE CODE: SC23PMJDSCPHY401 Group B

TYPE OF COURSE	CREDIT	Marks	COURSE CODE
Major Discipline Core Course Practical (MJDSCP)	2 (Group B)	25 CCE + 25 SEE = 50	SC23PMJDSCPHY401
Teaching Hours			
Teaching Hours per Week: 08 Hours for 4 Credit practical (120 Hours per Semester)			
Teaching Hours per Week: 04 Hours for 2 Credit practical (60 Hours per Semester)			

LABORATORY EXPERIMENT COURSE: Group B

1. To Determine Current Sensitivity, Voltage Sensitivity, Figure of Merit and Rg of B.G
2. To Determine High Resistance by equal Deflection Method.
3. To Determine Low Value of 'C' using Schering Bridge.
4. Study of Characteristics of a Photodiode and Draw the Graph of $I_D \rightarrow V_D$.
5. Comparison of Capacity (C1/C2) by De-Sauty Method
6. Low Resistance by Method of Projection.
7. Lagrange's forward Formula and Backward Formula (Interpolation)
8. To find the H-Parameter's from The Transistor in Common Emitter Configuration.
9. To Study of Half Adder and Full Adder
10. To Study of the SCR Characteristics.

Course Objectives:

- To gain practical knowledge by applying the experimental method to correlate with the Physics theory.
- To provide hands on experience with equipment such as, B G, Schering bridge, Transistor, SCR etc.
- To provide training how to analyze the experimental data and graphical analysis.
- To develop intellectual communication skills and discuss the basic principles of scientific concepts in the group.

Course Outcome: Learning Outcomes:

By the end of the course, the students will be able to,

- Gains practical knowledge of experimental methods and Get sufficient knowledge about equipments like, B G, schering bridge, transistor, SCR etc.
- Determine current sensitivity, voltage sensitivity, capacity, low and high Resistance.
- Analyze and understands the experimental data and graphical analysis.
- Develop the communication skills by discussing basic principles of scientific concepts in the group.