

HEMCHANDRACHARYA NORTH GUJARAT UNIVERSITY, PATAN

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

PROGRAMME CODE: SCIUG101

(Effective from June 2024 Under NEP – 2020)

LABORATORY EXPERIMENTS: MAJOR COURSE 2 Credit for Group A

COURSE CODE: SC23PMJDSCPHY301 Group A

TYPE OF COURSE	CREDIT	Marks	COURSE CODE
Major Discipline Core Course Practical (MJDSCP)	2 (Group A)	25 CCE + 25 SEE = 50	SC24PMJDSCPHY301
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 Find out Viscosity co- efficient of liquid using co-axial viscometer.
2. To determine Young Modulus 'Y' for metal rod using Kund 's tube.
3. To find out the value of e/k using power transistor (PNP \rightarrow CK 100 or NPN \rightarrow SL-100).
4. To Determine Self Inductance of inductor by Anderson Bridge.
5. To determination of ' l_0 ', ' r ' and ' a ' for resonance pendulum.
6. To Determine Unknown Wave Length of Light ' λ ' using Hartzmann Formula.
7. To Find out The Refractive Index of Ordinary and Extra Ordinary Rays using Dual Refraction From Calcite Prism.
8. To Find out The Wave Length of Light using Newton's Rings.
9. Stirling's formula (Numerical interpolation).
10. To determine unknown resistance using Post Office Box.

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, Pendulum, Viscometer, Newtons ring apparatus, power transistor and Anderson bridge.
- To learn the usage of electrical and optical systems of various measurements.
- To provide training how to analyze the experimental data and graphical analysis.

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, Pendulum, Viscometer, Newtons ring apparatus, power transistor and Anderson bridge.
- Determine unknown wavelength, refractive index, 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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PROGRAMME CODE: SCIUG101

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COURSE NAME: MAJOR DISCIPLINE PRACTICAL COURSE 2 Credit for Group B

COURSE CODE: SC23PMJDSCPHY301 Group B

TYPE OF COURSE	CREDIT	Marks	COURSE CODE
Major Discipline Core Course Practical (MJDSCP)	2 (Group B)	25 CCE + 25 SEE =50	SC24PMJDSCPHY301
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 the Absolute Value of Capacity using B.G or S.G
2. Obtain the Characteristics of UJT and Determination of R_{BB} , V_d & η
3. To Verify De Morgen's Theorems using IC-7400.
4. Absorption Co-Efficient of Liquid using Photocell.
5. Obtain the Characteristics of PNP Common Base Transistor.
6. A Study of Characteristics of JFET & Determination of μ , r_d , g_m
7. Construction of AND, OR, NOT Gates Using NAND & NOR Universal Gates.
8. Numerical Analysis (Minimum Class Method)
9. To determine μ , r_d , g_m parameter of the JFET
10. A Study of Load line and determination of Q point for BJT

Course Objectives:

- To gain practical knowledge by applying the experimental method to correlate with the Physics theory.
- To aware about circuit analysis of various electronic apparatus.
- To get knowledge by performing experiments and determine various parameter related with it.
- To provide training how to analyze the experimental data and graphical analysis.
- To develop 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 understand,

- The basic principles of Physics related to courses in the practical way.
- Operational details and Experimental methods of various electronic circuits.
- Aware about JFET, Various Gate, UJT, Photocell and Ballistic Galvanometer.
- Determine Q-point of BJT, μ , r_d , g_m parameter of the JFET, Absorption Co-Efficient of Photocell etc.
- Get sufficient knowledge by performing experiments based on theoretical aspect.
- Learns how to analyze the experimental data and graphical analysis.
- Develop the communication skills by discussing basic principles of scientific concepts in the group.