MGSC – B.Sc. – Physics Curriculum 2024 OBE Pattern

Semester 1

Minor Course-113P 2 Credits

Semester: 1 NEP-2020	Course No.: 113 (P)	Course Category: Minor paper Course Code: PHE 113(P) Credits: 2 Course Title: : Physics lab

The course objectives for mechanics and electronics practical in physics generally focus on developing practical skills in measurement, experimentation, and understanding of fundamental concepts in mechanics and electronic circuits.

Key objectives include:

Understanding and applying principles of mechanics through hands-on experiments such as measuring physical quantities and verifying theoretical laws.

Gaining proficiency with electronic instrumentation like analog meter, digital multimeter

Understand how to connect basic electronic circuits.

Developing the ability to interpret experimental data, analyse errors, and relate practical observations to theoretical physics concepts.

Learning to operate and maintain physics laboratory equipment used in mechanics and electronics.

Course Outcomes: On successful completion of the course, learners will be able to

S.NO	COURSE OUTCOME	BLOOMS VERB
CO1	Set up the instruments as per the instructions, Connect the circuit as given in the circuit diagram	Remember Understand
CO2	Develop measurements techniques, record observations, use the given formula, do calculations.	Understand APPLY
CO3	Find uncertainty involved in the observations	Evaluate
CO4	Analyse the observations for scientific inference	Analyse

Syllabus:

Practical Title	Practical (Hours)
GROUP-A 1. To find the prism angle and refractive index of a prism using spectrometer. 2. To find frequency of given tuning fork using Melde's Experiment. (i) To prove P/L constant. (ii) To prove T/L2 constant 3.To test the accuracy of relation n2 (V + Kv) = constant and to determine the frequency of unknown fork using Resonator. 4. To determine the moment of inertia of given Flywheel. 5. Simulation of Nuclear Radioactive decay using Calculator. 6. Using travelling microscope find inner and outer diameter of (i) Ring and (ii) Rubber tube.	**30**
Group B 1. Measurement of resistance, capacitor and inductance using LCR meter. Resistance and capacitance value using colour code, Diode testing using multimeter. 2. Measurement of Boltzmann's constant using Diode. 3. Thevenin Theorem. 4. To draw characteristic, to find voltage regulation and ripple factor of a Half wave rectifier circuit without and with filter.	**30**

5. Maximum power transfer theorem 6. For given two capacitors determine the value of capacitance for each of them. Also find capacitance By connecting them in series and (ii) by connecting them parallel.	

Reference books:

1. B. Sc. Practical Physics by C. L. Arora, 20th Edition, 2020 S. Chand and Company.
2. Practical Physics by G. L. Squires. Fourth edition, Cambridge, 2001.
3. Practical Physics with viva – voce Dr.S.L. Gupta and Dr.V.Kumar, 27th edition, 2010 Pragati publication