Semester 1
MajorCourse-112P
(Compulsory Course – 4 Credits)

Semester: 1	**Course No.: 112 (P)**	**Course Code:** PHM 112(P) **Course Title: :** Physics lab
Credits: 4		**Course Category: core paper**

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

CO#	COGNITIVE ABILITIES	COURSE OUTCOMES
CO111 T-1	REMEMBERING	Get acquainted and learn the use of different laboratory instruments
CO111 T-2	UNDERSTANDING	Hands on training to measure passive components required for any electronic circuits and to impart knowledge to study various basic electronic circuits.
CO111 T-3	APPLYING	To measure different physical quantities related to general physics , optics ,electronics and passive components of electronic circuits
CO111 T-4	ANALYSING	
CO101.5	EVALUATING	

Unit No.	Unit Contents	Sessions Allotted
1	**GROUP A** 1. To find the prism angle and refractive index of a prism using spectrometer. 2. Melde's Experiment. (i) To prove P/L constant. (ii) To prove T/L^2 constant 3. Resonator To test the accuracy of relation $n^2 (V + Kv)$ = constant and to determine the frequency of unknown fork. 4. Flywheel To determine the moment of inertia. 5. Radioactive decay Simulation of Nuclear Radioactive decay using Calculator. 6. Study of travelling microscope	**60**

	To find distance between two given points, to find diameter of a ring, to find inner and outer diameter of a rubber tube. 7. Graphical method to draw the Lissajous figure. 8. Simple pendulum. To find the relaxation time and quality factor. 9 'g' by Bar pendulum To obtain the value of 'g' by bar pendulum. 10. Liquid lens Find the refractive index of the given liquid 11.Analysis of error	
2	**GROUP: B** 1. Measurement of resistance, capacitor and inductance using LCR meter. Resistance and capacitance value using color code, Diode testing using multimeter, Transistor and their configurations, identification of type of transistors and leads of Transistors. 2. Measurement of Boltzmann's constant using Diode 3. To draw characteristic, to find voltage regulation and ripple factor of a Half wave rectifier circuit without and with filter. 4. To draw characteristic, to find voltage regulation and ripple factor of a full wave rectifier circuit without and with filter. 5. To draw loadline and find Q point of a given diode. 6. Value of capacitance For given two capacitors determine the value of capacitance for each of them (i) By connecting them in series and (ii) by connecting them parallel. 7. Value of inductance For given two inductors determine the value of inductance for each of them (i) By connecting them in series and (ii) by connecting them parallel. 8. Study of Transformer	60

	To determine (i) turn ratio (ii) percentage efficiency (iii) energy loss due to copper, for a given transformer. 9. Logic Gates (AND, OR, NOT) (Using discrete components) Verification of truth tables and giving understanding of voltage level for '0'and '1'level. 10. Half-Wave Rectifier Obtain load characteristic and % of regulation of Half-wave rectifier without filter and with capacitor filter. Determine ripple factor also. 11. Series Resonance To determine the frequency of a.c. emf by series resonance circuit varying capacitor.	

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. 4th edition, Cambridge , 2001.

3. Practical Physics with viva – voce Dr.S.L. Gupta and Dr.V.Kumar , 27th edition , 20210 Pragati Prakashan .