1.	Title of the course	Physics Laboratory II
2.	Course number	PH509P
3.	Structure of credits	0-0-3-2
4.	Offered to	PG
5.	New course/modification to	Modification To PH5292/10
6.	To be offered by	Department of Physics
7.	To take effect from	July 2022
8.	Prerequisite	Nil
9.	**Course Objective(s):** To introduce to students a few common experimental probes in Condensed Matter Physics, Nano Science, Material Science, and Nuclear Physics. To enable students develop the ability to design new experiments in the above areas of Physics.	
10.	**Course Content:** Structural characterization using powder X-Ray diffraction; Probing the phase transition using Thermal Gravity Analysis and Differential Scanning Calorimetery; Estimation type of charge carriers and magnitude of carrier concentration using Hall effect; Heat capacity of metals; Determination of Lande g-factor using electron spin resonance; Estimation resonant frequency, spin-lattice relaxation, spin-spin relaxation using nuclear magnetic resonance; Understanding the magnetic properties using Ferromagnetic hysteresis; Magnetic susceptibility using Gouy's balance; Geiger Mueller counter.	
11.	**Textbook(s):** 1. Melissinos C A and Napolitano J, *Experiments in Modern Physics*, Elsevier (2003). 2. Preston W D and Dietz R E, *The Art of Experimental Physics*, John Wiley & Sons (1991).	
12.	**Reference(s):** 1. Beiser A, *Concepts of Modern Physics*, McGraw-Hill Education (2015). 2. Bevington R P and Robinson K D, *Data Reduction and Error Analysis for the Physical Sciences*, McGraw-Hill Education (2015). 3. Lyons L, *A Practical Guide to Data Analysis for Physical Science Students*, Cambridge University Press (2012). 4. Taylor R J, *An Introduction to Error Analysis: The Study of Uncertainties in Physical Measurements*, University Science Books (1997).	