

22PH201 PHYSICS LABORATORY

R-2022 (Common to I Semester CSE, CSE(CS) & ADS)

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COURSE OUTCOMES

On completion of this course, the students will be able to

- CO1: Discuss the basic principles of working of laser and their applications in fibre optic communication
- CO2: Summarize the classical and quantum electron theories and energy band structures
- CO3: Describe the conductivity in intrinsic and extrinsic semiconductors and importance of Hall Effect measurements
- CO4: Associate the properties of nanoscale materials and their applications in quantum computing
- CO5: Interpret the properties of magnetic and superconducting materials and their applications in computer data storage

List of Experiments:-

1. **etermination of divergence of laser beam** D
2. **etermination of acceptance angle and numerical aperture of an optical fibre** D
3. **etermination of thermal conductivity of a bad conductor - Lee's disc method** D
4. **asurement of the internal resistance using potentiometer** M
5. **and-gap determination of intrinsic semiconductor** B
6. **etermination of wavelength of semiconductor laser** D
7. **ynthesis of nanoparticles by sol-gel method** S

8. **D**
etermination of particle size using laser source
9. **D**
etermination of hysteresis loss B-H loop.
10. **D**
etermination of magnetic susceptibility of a paramagnetic liquid using Quincke's apparatus.

REFERENCES:

1. **R.P. Feynman**, The Feynman Lectures on Physics - Vol. II, The New Millennium Edition, 2012.
2. **M.A.Wahab**, Solid State Physics, 3rd Edition, Narosa Publishing House Pvt. Ltd., 2015.
3. **B.Rogers, J. Adams and S.Pennathu**, Nanotechnology: Understanding Small System, CRC Press, 2014.
4. **C.P. Williams**, Explorations in Quantum Computing, Springer-Verlag London, 2011.

LIST OF EQUIPMENTS FOR A BATCH OF 30 STUDENTS

S. No.	Description of Equipment	Quantity
1.	Semiconductor Laser	6 Nos.
2.	Determination of optical fibre parameters	6 Nos.
3.	Lee's disc apparatus	6 Nos.
4.	Potentiometer	6 Nos.
5.	Bandgap determination set up	6 Nos.
6.	Sol-gel synthesis	2 Nos.
7.	B-H loop set-up	5 Nos.
8.	Quincke's apparatus	2 Nos.

