

22PH101 PHYSICS LABORATORY
R-2022 (Common to I Semester ECE)

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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: Explain the concepts of photovoltaic technology and its applications.

List of Experiments:-

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

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| 8. | etermination of particle size using laser source | D |
| 9. | etermination of bandgap of an LED | D |
| 10. | olar cell characteristics | S |

REFERENCES:

1. **R.K. Gaur and S.L. Gupta**, Engineering Physics, Dhanpat Rai Publications (P) Ltd., Eighth Edition., New Delhi, 2001.
2. **Hanson, G.W.**, Fundamentals of Nanoelectronics, Pearson Education, 2009
3. **R. A. Serway and J.W. Jewett**, Physics for Scientists and Engineers, Ninth Edition. Cengage Learning, 2014.

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.	Bandgap of an LED	6 Nos.
8.	Solar cell characteristics	2 Nos.