

# ENGINEERING PHYSICS LABORATORY

Semester	: I/II	CIE Marks	: 40
Course Code	: 18PHYL16/26	SEE Marks	: 60
Teaching Hours/week (L:T:P)	: 0:0:2	Exam Hours	: 03
Credits : 01			

## Course Learning Objectives:

This course (18PHY16/26) will enable students

- To realize experimentally, the mechanical, electrical and thermal properties of materials, concept of waves and oscillations
- Design simple circuits and hence study the characteristics of semiconductor devices

Sl. No.	Title of the Experiment	To which Module it belongs
1	Determination of spring constants in Series and Parallel combination	I
2	Determination of Magnetic field intensity is along the axis of a circular coil carrying current (by deflection method)	III
3	$n$ & $I$ by Torsional pendulum (radius of the wire, mass and dimensions of the regular bodies to be given). (In the examination either $n$ or $I$ to be asked)	II
4	Young's modulus of a beam by Single Cantilever experiment (breadth and thickness of the beam to be given)	II
5	Radius of curvature of piano convex lens using Newton's rings (wavelength of light to be given)	III
6	Study Series and parallel LCR resonance and hence Calculate inductance, band width and quality factor using series LCR Resonance	I/III
7	Determine Acceptance angle and Numerical aperture of an optical fiber	III
8	Determine Wavelength of semiconductor laser using Laser diffraction by calculating grating constant.	IV
9	Estimation of Fermi Energy of Copper	V
10	Study of input and output Transistor characteristics and hence calculate input resistance, and	V
11	Draw photodiode characteristics and calculate power responsivity	V
12	Calculation of Dielectric constant by RC charging and Discharging	V

Note:

1. In addition to above experiments, Reddy shock tube must be introduced as compulsory demo experiment.
2. All 12 experiments are mandatory. Student has to perform 2 experiments in the semester end examination.

### Course Outcomes:

Upon completion of this course, students will be able to

1. Apprehend the concepts of interference of light, diffraction of light, Fermi energy and magnetic effect of current
2. Understand the principles of operations of optical fibers and semiconductor devices such as Photodiode, and NPN transistor using simple circuits
3. Determine elastic moduli and moment of inertia of given materials with the help of suggested procedures
4. Recognize the resonance concept and its practical applications
5. Understand the importance of measurement procedure, honest recording and representing the data, reproduction of final results

## Scheme of Evaluation

(with effect from 2018-19 Scheme)

**Subject : Engineering Physics Lab**

**Code : 18PHYL16/26**

The student has to perform **TWO** experiments during the practical examination of **THREE** hours duration. The scheme of valuation shall be as follows.

Sl. No.	Description	Max.Marks	Part:A Marks for First experiment	Part:B Marks for Second experiment
01	Write up: Formula, Tabular column and Circuit diagram/Ray Diagram	16	4+2+2=08	4+2+2=08
02	Experimental set up/Circuit connection	10	05	05
03	Conduction and reading	40	20	20
04	Graph, Calculations, Results and accuracy	20	2+4+2+2=10	2+4+2+2=10
06	Viva -Voce	14	07	07
<b>Total</b>		<b>100</b>	<b>50</b>	<b>50</b>

**Note:** The student is required to obtain a minimum of 40 % Marks in the practical examination to pass.