I/II Semester

ENGINEERING PHYSICS LABORATORY			
Course Code	21PHYL16/26	CIE Marks	50
Teaching Hours/Week (L: T:P: S)	0:0:2:0	SEE Marks	50
Credits	01	Exam Hours	3 Hours

Course objectives:

1. Understand the measurement techniques and usage of instruments in physics.
2. Demonstrate competency and understanding of the basic concepts found in experimental Physics.
3. Construct and analyse the electronic circuits.
4. Estimate the error in measurements and the ability to prepare a valid laboratory record.

List of Experiments: Any Ten Experiments to be performed

Sl.NO	Experiments
1	Determination of spring constants by Series and Parallel combination.
2	Determination of rigidity modulus of the material by the torsional pendulum.
3	Study series and parallel LCR resonance and hence calculate inductance, bandwidth, and quality factor.
4	To verify Stefan's Law
5	I-V Characteristics of Photodiode.
6	Determine acceptance angle and numerical aperture of an optical fiber.
7	Determine the wavelength of the laser source using a diffraction grating elements.
8	Determine the Fermi energy of metal (copper).
9	To find the resistivity of a semiconductor using the Four Probe method.
10	To determine the dielectric constant by charging and discharging the capacitor.
11	Determination of Magnetic field intensity along the axis of a circular coil carrying current.
12	Forced mechanical oscillations and resonance.

Course outcomes (Course Skill Set):

At the end of the course the student will be able to:

1. Understand the measuring techniques
2. Operate different instruments and be capable to analyse the experimental results.
3. Construct the circuits and their analysis.

Assessment Details (both CIE and SEE)

The weightage of Continuous Internal Evaluation (CIE) is 50% and for Semester End Exam (SEE) is 50%. The minimum passing mark for the CIE is 50% of the maximum marks (25 marks). A student shall be deemed to have satisfied the academic requirements and earned the credits allotted to each course if the student secures not less than 35% (18 Marks out of 50) in the semester-end examination(SEE).

Continuous Internal Evaluation (CIE):

CIE marks for the practical course is **50 Marks**.

The split-up of CIE marks for record/ journal and test are in the ratio **60:40**.

- Each experiment to be evaluated for conduction with observation sheet and record write-up. Rubrics for the evaluation of the journal/write-up for hardware/software experiments designed by the faculty who is handling the laboratory session and is made known to students at the beginning of the practical session.
- Record should contain all the specified experiments in the syllabus and each experiment write-up will be evaluated for 10 marks.
- Total marks scored by the students are scaled downed to 30 marks (60% of maximum marks).
- Weightage to be given for neatness and submission of record/write-up on time.
- Department shall conduct 02 tests for 100 marks, the first test shall be conducted after the 8th week of the semester and the second test shall be conducted after the 14th week of the semester.
- In each test, test write-up, conduction of experiment, acceptable result, and procedural knowledge will carry a weightage of 60% and the rest 40% for viva-voce.
- The suitable rubrics can be designed to evaluate each student's performance and learning ability. Rubrics suggested in **Annexure-II of Regulation book**
- The average of 02 tests is scaled down to **20 marks** (40% of the maximum marks).

Semester End Evaluation (SEE Students):

SEE marks for the practical course is 50 Marks.

SEE shall be conducted jointly by the internal and external examiners appointed by the University

1. All laboratory experiments are to be included for practical examination.
2. (Rubrics) Breakup of marks and the instructions printed on the cover page of the answer script to be strictly adhered to by the examiners. **OR** based on the course requirement evaluation rubrics shall be decided jointly by internal and external examiners.
3. Students can pick one question (experiment) from the questions lot prepared by the internal /external examiners jointly.
4. Evaluation of test write-up/ conduction procedure and result/viva will be conducted jointly by Internal and external examiners.
5. General rubrics for SEE are mentioned here, writeup-20%, Conduction procedure and result in -60%, Viva-voce 20% of maximum marks. SEE for practical shall be evaluated for

100 marks and scored marks shall be scaled down to 50 marks (however, based on course type, rubrics shall be decided by the examiners)

6. Change of experiment is allowed only once and 15% Marks allotted to the procedure part to be made zero.

The duration of SEE is 03 hours

7. Rubrics suggested in **Annexure-II of Regulation book**

Suggested Learning Resources:

Reference books.

1. Engineering Lab Manual by WBUT-New Age International Publishers.
2. Applied Physics Lab Manual by Anoop Sing Yadav.

Weblinks, Video lectures, and e-resources.

https://vlab.amrita.edu/?sub=1&brch=282&sim=1512&cnt=1
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