

Semester IV

PHYSICS PRACTICAL COURSE –USPHP4 Credit: 02 (60 Hours)

Passing standards for practical:

Total Credit: 02 (60 Hours)

Total Marks: 50

40% Internal Continuous assessment: 20 Marks

60% External Semester End Examination: 30 marks

Note: Individual Passing in Internal and External Examination

Instructions:

- All the measurements and readings should be written with proper units in SI system only.
- After completing all the required number of experiments in the semester and recording them in journal, student will have to get their journal certified and produce the certified journal at the time of practical examination.
- While evaluating practical, weightage should be given to circuit/ray diagram, observations, tabular representation, experimental skills and procedure, graph, calculation and result.
- Skill of doing the experiment and understanding physics concepts should be more important than the accuracy of final result.

Learning Outcomes:

On successful completion of this course students will be able to:

1. Understand & practice the skills while performing experiments.
2. Understand the use of apparatus and their use without fear & hesitation.
3. Correlate the physics theory concepts to practical application.
4. Understand the concept of errors and their estimation.

Internal Continuous assessment (20 Marks)

Short Skill experiment (Minimum Four Experiment) will be conducted, for example

- a. To find least count of different types of optical instruments
- b. To calculate and measure values of passive components

- c. To find percentage tolerance of different types of passive components
- d. To demonstrate an experiment and explain principles of Physics
- e. To prepare chart for and explain the devices /components used for experiments.
- f. Execute a short experiment which will showcase either innovation and / or different methods to the satisfaction of teacher in-charge of practical.
- g. Any other skill experiment related to syllabus

Note: Teacher should follow the above guidelines to conduct skill experiment

Internal Continuous practical assessment pattern (20 Marks)

Sr.No.	Activity	Total 20 Marks
1	One skill experiment	10 Marks
2	viva -voce	05 Marks
3	Overall performance	05 Marks

• Semester end practical Examination (30 Marks)

- For practical examinations, the learner will be examined in one experiment.
- Experiment will be of two hours' duration.
- A Minimum **TEN** experiments must be perform and reported in journal.
- Evaluation in viva voce will be based on regular experiments.
- A learner will be allowed to appear for the semester end practical examination only if he/she submits a certified journal of Physics with a certificate that the learner has completed the practical course of Physics Semester IV as per the minimum requirements.

• Semester end Practical Examination Evaluation pattern (30 Marks)

• Duration of the practical examination: 2 Hours

Sr.No.	Activity	Total 30 Marks
1	One experiment	20 Marks
2	Certified Journal	05 Marks
3	Viva-Voce	05 Marks

List of Experiments

1. Brewster's law: determination of μ
 2. G By shunting using Moving Coil Galvanometer
 3. Determination of Absolute capacitance using BG
 4. Determination of angle of diffraction using grating (1st order only)
 5. To determine wavelength of monochromatic light by using biprism.
 6. Optical lever: determination of μ
 7. I-V Characteristics of Solar cell with different intensity of light
 8. Verification of Stefans law (Electrical Method)
 9. J-K flip flop: Design and verify truth table of J-K flip flop (Using IC 7476 or IC 7473)
 10. OPAMP: Inverting amplifier with different gains
 11. OPAMP Non-inverting amplifier with different gains & Voltage Follower
 12. OPAMP as Integrator
 13. OPAMP as Differentiator
 14. MOD 5 & MOD 10 counter using IC7490 (BB)
 15. Shift registers (SISO and SIPO)
- ❖ Note: BB indicates that practical should be performed using breadboard(BB)

Semester End Practical Examination: Scheme of Examination:

There will be internal assessment for practical. A candidate will be allowed to appear for the semester end practical examination only if the candidate submits a certified journal at the time of practical examination of the semester or a certificate from the Head of the Department/Institute to the effect that the candidate has completed the practical course of that semester of S.Y.B.Sc. Physics as per the minimum requirement. The duration of the practical examination will be two hours. There will be one experiment through which the candidate will be examined in practical. The questions on slips for the same should be framed in such away that candidate will be able to complete the task and should be evaluated for its skill and understanding of physics.

References:

1. Advanced course in Practical Physics D. Chattopadhyaya, P. Rakshit & B. Saha. (6th Edition) Book and Allied Pvt. Ltd.
2. B.Sc. PRACTICAL Physics – Harnam Singh S. Chand & Co. Ltd. 2001
3. B.Sc. Practical Physics – C. L. Arora (1st Edition) – 2001 S. Chand and Co. Ltd.

Additional References:

4. A text book of advanced practical PHYSICS _ SAMIR Kumar Ghosh, New Central Book Agency (3rd edition)
5. Practical Physics C. L. Squires (3rd Edition) Cambridge University
6. University Practical Physics – D. C. Tayal. Himalaya Publication
7. Advance Practical Physics – Worsnop & Flint.