Subject Code: 02PY0406

Subject Name: Laboratory Practicals 1

M.Sc. Year-I, Sem-I

Objective: To introspet varioius fundamental experiments of Physics.

Credits Earned: 2 Credits

Course Outcomes: After completion of this course, post graduate will be able to

- Gain the hands-on experience in performing fundamental experiments in semiconductor physics, electronics and nuclear physics.

Teaching and Examination Scheme

Teaching Scheme (Hours)			Credits	Theory Marks			Tutorial/ Practical Marks		Total Marks
Theory	Tutorial	Practical		ESE	IA	CSE	Viva (V)	Term Work (TW)	
0	0	4	2	0	0	0	25	25	50

Suggested List of Experiments:

1. To find the hall voltage of given semiconductor sample in various conditions
2. To find the wavelength of laser light using diffraction grating
3. To understand the operation and use of thermocouple for temperature measurements
4. To find the I-V characteristics of solar cell under the condition of parallel & series connections and find fill factor
5. To study De Morgan's theorem using logic gates
6. To study ball-milling method for the synthesis of materials (conceptual aspects)
7. To study the GM counter characteristics by using various radioactive sources and filters
8. To study synchronous counters using logic gates
9. To develop the practice of mounting different components on the PCB by soldering (given circuit)

References:

1. Sayer M. & Mansingh A., "Measurement, Instrumentation & Experiment Design in Physics and Engineering", Prentice Hall India **2000**
2. Melissinos A.C. and Napolitano J, "Experiments in Modern Physics", Academic Press **2000**
3. W.R. Runyan , "Semiconductor Measurements and Instrumentation", McGraw Hill **2002**

Instructional Method:

a. The course delivery method will depend upon the requirement of content and need of students. The teacher in addition to conventional teaching method by black board, may also use any of tools such as demonstration, role play, Quiz, brainstorming, MOOCs etc.

b. The internal evaluation will be done on the basis of continuous evaluation of students in the laboratory and class-room.

c. Practical examination will be conducted at the end of semester for evaluation of performance of students in laboratory.

d. Students will use supplementary resources such as online videos, NPTEL videos, e-courses, Virtual Laboratory.