

Course Type	Course Code	Name of Course	L	T	P	Credit
DP	NPHC506	Experimental Physics I	0	0	3	1.5

Course Objective

- To familiarize students with basic experiments of electronics;
- To increase observational and analytical power of students.

Learning Outcomes

Students will learn:

- 1 Basic circuitry of electronics experiments on bread board.
- 2 Basic physics of working mechanism of each experiment.
- 3 To enhance experimental capability and instrument handling.

Ex. Number	Title of Experiments	No. of classes
1	To study the rectification of an alternating voltage source through bridge rectifier	2*3
2	To design a free running (Astable) Multivibrator and hence study transients using 555 timer	2*3
3	To design a R.C. coupled amplifier and hence to measure its voltage gain	2*3
4	To determine the Planck's constant and work function of materials by photo-electric effect	1*3
5	To study of operational amplifier as inverting and non inverting amplifier	2*3
6	To study wavelength of electron at different accelerating voltages using Bragg condition	1*3
7	Study of series and parallel connections in solar cell (PV) module	2*3
8	To verify the existence of discrete atomic energy levels by Frank & Hertz experiment	2*3
Total (Tentatively 42 hours)		14*3

Text Books:

1. An Advanced Course in Practical Physics by D. Chattopadhyay, P. C. Rakshit; New Central Book Agency (P) Ltd., 2007 (8e)
2. A Textbook of Advanced Practical Physics by S. K. Ghosh; New Central, 2000 (4e)
3. Electronic Principles; A. Malvino and David J. Bates; Mcgraw Higher Ed; 2006.

Reference Books:

1. Advanced practical physics for students, by B. L. Worsnop and H. T. Flint; Littlehampton Book Services Ltd., 1951 (9e)
2. Advanced Practical Physics, V-I and II by Chauhan and Singh; Pragati Prakashan
3. Physical Methods, Instruments and Measurements, Vol. 1-4, Edited by Yuri M. Tsipenyuk; Russian Academy of Sciences, Russia
4. Handbook of Physical Measurements, by Judith Hall, Judith Allanson, Karen Gripp, Anne Slavotinek; Oxford, 2e (2006)