



EXPERIMENTAL PHYSICS - I

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INTENDED AUDIENCE : B. Sc in Physics / all science BE/BTech in all Engineering and Technology

INDUSTRY SUPPORT : Experimental physics has the most striking impact on the industry where ever the instruments are used . The industries of electronics,telecommunication and instrumentation will specially recognize thiscourse.

COURSE OUTLINE :

I will teach Experimental Physics in this course. I have designed this course in three modules:(I) Experimental Physics-I : Experiments on Mechanics, General properties of matter, Thermal properties of matter, Sound, Electricity and magnetism.(II) Experimental Physics-II : Experiments on Optics and Modern Physics.(III) Experimental Physics-III : Experiments on Solid state physics and Modern Optics..Each module is of 30 hours course and at present we will discuss only module-I. Module-II and III may be discussed in successive semester.This course is not only suitable for undergraduate students of physics,rather it is compulsory for all undergraduate students of science,engineering and technology , who have to deal with instruments in any point of time during their carrier and profession. This course will make you understand the working principle of many common devices through their applications in different experiments with particular aims.Also this course have positive feedback for the national level examinations like GATE, NET, JAM and JEST conducted by IIT, UGC / CSIR, IIT and SERB, respectively

ABOUT INSTRUCTOR :

Prof. Amal Kumar Das, after completion of B. Sc (Hons) in Physics and M. Sc in Physics in 1994, he did Ph. D on experimental physics and material science from Institute of Physics, Bhubaneswar. After completing post-doctoral research on experimental physics from Paul Drude Institute, Berlin, Germany, Prof. Das joined as a Faculty in Department of Physics, Indian Institute of Technology Kharagpur in 2004 and teaching different subject to UG and PG students including experiments in teaching laboratory of all levels starting from 1st year of B. tech/ B Sc/integrated M. Sc to Ph. D. Prior to join here, Prof. Das took experimental physics laboratory for four years to B. Sc students in an undergraduate college named Malda College under North Bengal University, West Bengal.

COURSE PLAN :

Week 1 : Basic tools in a laboratory

Week 2 : Basic apparatus in a laboratory

Week 3 : Basic analysis of data in a laboratory

Week 4 : Experiments on Mechanics

Week 5 : Experiments on General properties of matters

Week 6 : Experiments on Thermal properties of matter

Week 7 : Experiments on Thermoelectricity and Sound

Week 8 : Experiments on Electricity

Week 9 : Experiments on Electricity

Week 10 : Experiments on Electricity

Week 11 : Experiments on electromagnetism

Week 12 : Experiments on electromagnetism