EXPERIMENTAL PHYSICS III

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TYPE OF COURSE : Rerun | Core | UG
COURSE DURATION : 12 weeks (24 Jan' 22 - 15 Apr' 22)
EXAM DATE : 24 Apr 2022

INTENDED AUDIENCE : Students doing B. Sc in Physics / BE/BTech in all Engineering and Technology disciplines; all Science Students.

INDUSTRIES APPLICABLE TO : 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 this course.

COURSE OUTLINE :

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 career and profession. This course will make the learners understand the working principle of many common devices through their applications in different experiments with particular aims.

ABOUT INSTRUCTOR :
After completion of B. Sc (Hons) and M. Sc in Physics in 1994, Prof. Das 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, he joined as a Faculty in Department of Physics, Indian Institute of Technology Kharagpur in 2004.

COURSE PLAN :

Week 1**:** Summary of previous course on Experimental Physics-I and -II

Week 2**:** Basic components in the laboratory: magnetic field, electric field, CRO, Gaussmeter, temperature sensor, Lock-in-Amplifier, etc

Week 3**:** Experiment on Hall effect, ESR and NMR

Week 4**:** Experiments on electrical transport as a function of magnetic field and temperature

Week 5**:** Experiments on semiconductors

Week 6**:** Experiments on magnetism

Week 7**:** Experiments on magnetism,cont'd

Week 8**:** Experiments on dielectrics

Week 9**:** Experiments on dielectrics,cont'd

Week 10**:** Experiments on atomic spectra

Week 11**:** Experiments on molecular spectra

Week 12: Experiments on Photoelastic effect, Faraday effect and Zeeman effect