PHYSICS LABORATORY II A - L

FIS/01 - 12 CFU - Annual Tuition

Teaching Staff

SALVATORE COSTA

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Office Hours: Martedi ore 10:00 e Giovedi ore 17:00 (presentarsi entro 10 minuti; il docente dedicherà quindi ai colloqui il tempo necessario)

LEARNING OBJECTIVES

Become skilled in assembling electric circuits, in building electric, magnetic and optial devices, and in performing measurements of physical quantities and technical specifications.

Gain basic knowledge about the working priciples of instruments, master general methodes and develop skills useful in investigating electomagnetic and optical phemomena not necessarily alraedy presented in the Course.

Gain basic knowledge and develop skills useful in designing new devices in the concerned scientific field.

Gain the ability to correctly analize scientific data and to present an experiment in a good-quality scientific paper where the data are analyzed and results are presented and interpreted.

DETAILED COURSE CONTENT

Description and subsequent realization of about 30 experiments aimed to measure physics quantities and/or to verify physical laws in the fields of electricity, magnetism and optics. Analysis of the collected experimental data.

TEXTBOOK INFORMATION

The teacher does not follow any textbook specifically, but utilizes material from different sources. Studying the slides shown during the lectures is normally adequate to pass the exam.

For the laboratory experiments, Instruction manuals are provided. They can also be downloaded from the

Course web site (in Italian only): Instructions.

For students who wish to dwell deeper into the subjects of the Course, the following list is a selection of textbooks and other material concerning data analysis methods, electrical and optical instrumentation used in this Course, and related experimental procedures.

1. A. FOTI, C. GIANINO: **Elementi di analisi dei dati sperimentali**, Liguori Ed., Napoli
2. J. R. TAYLOR: **Introduzione all'analisi degli errori**, Zanichelli Ed., Bologna
3. ISO(Int.Standard Org.): **Guide to the Expression of Uncertainty in Measurement,** Ginevra
4. L. KIRKUP, B. FRENKEL: **An Introduction to Uncertainty in Measurement**, Cambridge University Press
5. L. G. PARRAT: **Probability and Experimental Errors in Science**, Wiley & Sons Inc.,N.Y.
6. F. TYLER: **A Laboratory Manual of Physics**, Edward Arnold Ed., London
7. M. SEVERI: **Introduzione alla sperimentazione fisica**, Ed. Zanichelli, Bologna
8. E. ACERBI: **Metodi e strumenti di misura**, Città Studi Ed., Milano
9. G. CORTINI, S. SCIUTI: **Misure ed apparecchi di Fisica (Elettricità)**, Veschi Ed., Roma
10. R. RICAMO: **Guida alle esperimentazioni di Fisica,Vol. 2°**, Casa Editrice Ambrosiana, Milano
11. F. W. SEARS: **Ottica** Casa Editrice Ambrosiana, Milano
12. G. E. FRIGERIO: **I laser**, Casa Editrice Ambrosiana, Milano

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