

## COURSE SYLLABUS

### Laboratory of Physics I

2122-1-E2701Q059

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#### Aims

Aim of the course is to give the basis of Experimental Physics through experiments of Mechanics and Thermodynamics and to learn statistics and error analysis.

#### Contents

The first part of the course is based on lectures on statistics: Analysis of experimental data, random and systematic errors, Distributions, Probability and confidence. The second part of the course is carried out in laboratory, by making basic Physics experiments

#### Detailed program

The first part of the course is based on lectures on statistics: Analysis of experimental data, random and systematic errors, Distributions, Probability and confidence.

The second part of the course is carried out in laboratory, by making the following basic physics experiments

- 1 DENSITY
- 2 BINOMIAL AND GAUSSIAN DISTRIBUTIONS

- 3 MOMENT OF INERTIA
- 4 STANDING WAVES
- 5 ELASTICITY
- 6 RADIOACTIVE DECAY
- 7 PENDULUM
- 8 NEWTON'S LAW OF COOLING
- 9 INERTIAL BALANCE
- 10 POISSON DISTRIBUTION

## Prerequisites

None

## Teaching form

Lessons and activity in laboratory, in groups of two-three students each, managing experimental activities varying every day of presence.

## Textbook and teaching resource

J.R. Taylor, *Introduzione all'analisi degli errori*, ed. Zanichelli

Tutorial video (e-learning page of the course)  
Laboratory notes (e-learning page of the course)

## Semester

Lessons: November - December 2021

Laboratory activities: March-April 2022

## Assessment method

Final Oral exam: discussion on the experimental activity based on a detailed laboratory report

## **Office hours**

On request contacting the teacher: [m.martini@unimib.it](mailto:m.martini@unimib.it)

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