



UNIVERSITÀ
DEGLI STUDI DI MILANO-BICOCCA

SYLLABUS DEL CORSO

Physical Characterization of Materials with Laboratory

2021-1-F5302Q005

Aims

The course.....

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The second part consists in an experimental activity carried out in the research laboratories of the Department. In this part, students have the opportunity to become familiar with up to date experimental techniques useful for the investigation of materials, and to apply the concepts learned during the lessons.

Contents

Interaction of materials with electromagnetic radiation. Optical and vibrational spectroscopy of solids. Introduction to selected experimental spectroscopy techniques. Execution of an experimental activity in a research laboratory of the Department.

Detailed program

Lessons

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Experimental activities

The students will be divided into small groups and they will work under the supervision of different researchers. Each group will be asked to perform one _____

- Photo- and radio-luminescence of luminescent materials

Prerequisites

Fundamentals of the structure of matter acquired during the bachelor course

Teaching form

Lessons and lab activities. Course attendance is mandatory for the experimental part, and strongly suggested for the lessons. During the Covid-19 emergency period, lessons will take place in a mixed mode: asynchronous/synchronous videotaped lessons and partial presence. The lab part will be organized in presence.

Textbook and teaching resource

Suggested textbooks:

F. Wooten, "Optical properties of solids", Academic Press

J. G. Solé, L.E. Bausà, D. Jaque, "Optical spectroscopy of Inorganic Solids", Wiley

H. Kuzmany, "Solid State Spectroscopy", Springer

B.E.A. Saleh and M.C. Teich, "Fundamentals of Photonics", Wiley

Semester

The course has an annual duration. Lessons are given from October to March, while the period for the lab part can be chosen along the whole year, upon agreement with the professors responsible for each group.

Assessment method

The examination is in oral form. It consists in:

- a discussion about the topics treated during the lessons
- a discussion about the experimental activity undertaken in the laboratory, also based on the written report. Students are asked to send the report to the professor by email in word or in pdf format at least one week before the exam.

During the Covid-19 emergency situation, the exams will be held remote mode. The exams will be carried out using the Webex platform; in the e-learning page of the course there will be a public link for access to the examination of possible external audience.

Office hours

8 - 18

Appointments between the professor and students can normally be agreed by email.
