
COURSE: Physics II

ACADEMIC YEAR: 2017-2018

TYPE OF EDUCATIONAL ACTIVITY: Basic

TEACHER: Francesco Fabozzi

e-mail: francesco.fabozzi@unibas.itwebsite: scienze.unibas.it/site/home.html.

phone: 0971/206166

mobile (optional): **3401483191**

Language: **Italian**

ECTS: 8 (8 lessons and 0 tutorials/practice)

n. of hours: 64 (64 lessons and 0 tutorials/practice)

Campus: **Potenza**
Dept./School: **Dipartimento di Scienze**
Program: **Chemistry**Semester: **2**
from **05/03/2018** to **15-30 june 2018**

EDUCATIONAL GOALS AND EXPECTED LEARNING OUTCOMES*The students*

- *Will learn the fundamental laws of electric and magnetic phenomena*
 - *Will be able to describe the laws of electromagnetism by means of an adequate mathematical formalism*
 - *Will be able to solve numerical problems on the topics presented in the lectures*
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PRE-REQUIREMENTS*Notions provided in Physics 1 course.*

SYLLABUS***Electrostatic laws (12 hours)****Electric charge. Electric interactions. Electrostatic field and its properties. Electric potential.****Conductors, capacitors, dielectrics (6 hours)****Electrostatic properties of conductors. Capacitors. Electrostatic in presence of dielectrics.****Electric current (6 hours)****Electrical conduction. Ohm's law. Electromotive force. Electric circuits.****Magnetic fields (10 hours)****Lorentz's force. Magnetic fields due to a current. Properties of magnetic fields. Force between current-carrying conductors. Magnetic properties of matter.****Electromagnetic induction (10 hours)****Electromagnetic induction. Induced electric fields. Displacement current. Self-induction. Alternating currents.****Electromagnetic waves (12 hours)****Maxwell's equations. Introduction to waves propagation. Planar electromagnetic waves. Energy transport and the Poynting vector.**The spectrum of electromagnetic waves.****Optics (8 hours)****Laws of geometrical optics. Waves optics. Interference and diffraction.*

TEACHING METHODS**Theoretical lectures.**

EVALUATION METHODS

Pre-selective Written examination followed by Oral examination

Only students reporting at least 18/30 in the Written examination are admitted to the Oral examination.

The final score is determined on the basis of the oral examination.

TEXTBOOKS AND ON-LINE EDUCATIONAL MATERIAL*Primary textbook:**Mazzoldi, Nigro, Voci**Elementi di Fisica – Elettromagnetismo**Publisher: Edises**Suggested supplementary textbook:**Halliday, Resnick, Walker**Fondamenti di Fisica: Elettrologia, magnetismo, ottica**Publisher: CEA*

INTERACTION WITH STUDENTS

The teacher receives students on Friday at 11:00-12:00, in his study

Students can contact the teacher by e-mail to make an appointment or to ask for informations related to the course.

EXAMINATION SESSIONS (FORECAST)¹

12/01/2018, 09/02/2018, 29/06/2018, 13/07/2018, 07/09/2018, 05/10/2018, 09/11/2018

SEMINARS BY EXTERNAL EXPERTS YES NO

FURTHER INFORMATION

¹Subject to possible changes: check the web site of the Teacher or the Department/School for updates.