
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 01.03.2019 to 31 May-30 June 2019

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

11/01/2019, 08/02/2019, 01/03/2019, 28/06/2019, 12/07/2019, 06/09/2019, 04/10/2019, 06/12/2019

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.