
COURSE: Physics II

ACADEMIC YEAR: 2019-2020

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 02.03.2020 to
31 May-20 June
2020

EDUCATIONAL GOALS AND EXPECTED LEARNING OUTCOMES*The students*

- *Will learn the fundamental laws of electric and magnetic phenomena and optics*
 - *Will be able to solve numerical problems and answer to questions on the topics presented in the lectures*
 - *Will be able to evaluate autonomously the correctness of the solution to a problem or of the answer to a question*
 - *Will be able to describe the laws of electromagnetism by means of an adequate mathematical formalism*
 - *Will be able to study and elaborate autonomously 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 – Onde**Publisher: Edises**Suggested supplementary textbook:**Halliday, Resnick, Walker**Fondamenti di Fisica: Elettrologia, magnetismo, ottica**Publisher: CEA*

INTERACTION WITH STUDENTS

The teacher receives students on Monday at 11:30-12:30, 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

07/02/2020, 06/03/2020, 26/06/2020, 17/07/2020, 04/09/2020, 02/10/2020, 04/12/2020

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.