

COURSE: Physics II			
ACADEMIC YEAR: 2016-2017			
TYPE OF EDUCATIONAL ACTIVITY: Basic			
TEACHER: Prof. Francesco Fabozzi			
e-mail: francesco.fabozzi@unibas.it		website: http://oldwww.unibas.it/utenti/gruppofisica/fisica_ita/ffabozzi_didattica.htm	
phone: 0971206166		mobile (optional):	
Language: ITALIAN			
ECTS: 8 (lessons)	n. of hours: 64 (lessons)	Campus: Potenza Dept./School: Dept. Of Sciences Program: Chemistry (L27)	Semester: II

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*

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 lessons.

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

LOGO DELLA STRUTTURA PRIMARIA

The teacher receives students by appointment.

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

13/01/2017, 23/06/17, 14/07/2017, 08/09/2017, 06/10/2017, 10/11/2017

SEMINARS BY EXTERNAL EXPERTS YES NO X

FURTHER INFORMATION

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