



COURSE: Physics II: Electromagnetism

TEACHER: dr Francesco Esposito

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website:

Language: Italian

ECTS: 6

n. of hours: 60

Academic year: 2014-15

Campus: PZ

Semester: First

TOPICS

Electrostatics, Magnetostatics, Maxwell equations, Electromagnetic waves.

TEACHING METHODS (please tick one or more options)

- Theoretical lessons
- Tutorials in classroom
- Tutorials in laboratory
- Project works
- Technical visits

Other activities (please specify) _____

TEXTBOOKS

Gettys, Keller, Skove: Fisica 2. McGraw-Hill

ON-LINE EDUCATIONAL MATERIAL

web address: <http://oldwww.unibas.it/utenti/esposito/home.html>

LEARNING OUTCOMES

Obtain a comprehensive understanding of the fundamental concepts in electricity and magnetism. Obtain analytical skills for solving problems in Electricity and Magnetism.

REQUIREMENTS

Physics 1

EVALUATION METHODS (please tick one or more options)

- Intermediate verifications
- Written examination
- Discussion of a project work
- Practical test
- Oral examination

Other methods (please specify) _____

DETAILED CONTENT

Electric charge and structure of matter. Point charges and continuous charge distributions. Coulomb force, electric field, electric potential, Gauss's law. Electrical properties of matter: Conductors and insulators, electrical capacity, the electric field in the conductors and dielectrics. Energy associated with the electric field. Electrical resistance, conduction in metals and Ohm's law. Kirckoff's laws. RC circuits. Magnetic field, Lorentz force and the dynamics of electric charges under the action of electromagnetic fields: motion on circular paths, Hall effect. Circulation of the magnetic field, Ampere's law, the solenoid. Energy associated with the magnetic field and electromagnetic field energy. Faraday's law and the phenomena of magnetic induction, inductance and self inductance. RL circuits. RLC circuits. Overview of magnetic properties of matter. Maxwell's equations and electromagnetic waves.

SEMINARS BY EXTERNAL EXPERTS YES NO



Università degli Studi della Basilicata
Scuola di Ingegneria

FURTHER INFORMATION
