UNIVERSITÀ DI PAVIA

Anno Accademico 2019/2020

PHYSICS II

Enrollment year	2018/2019
Academic year	2019/2020
Regulations	DM270
Academic discipline	FIS/03 (MATERIAL PHYSICS)
Department	DEPARTMENT OF ELECTRICAL,COMPUTER AND BIOMEDICAL ENGINEERING
Course	BIOENGINEERING
Curriculum	PERCORSO COMUNE
Year of study	2°
Period	1st semester (30/09/2019 - 20/01/2020)
ECTS	9
Lesson hours	68 lesson hours
Language	Italian
Activity type	WRITTEN AND ORAL TEST
Teacher	CRISTIANI ILARIA (titolare) - 9 ECTS
Prerequisites	Concepts and methods from 1st year courses. In particular: vector calculus identities, derivatives, theorems on gradient, divergence and curl.
Learning outcomes	Learning of electromagnetism principles and laws, stationary and time-dependent, including simple analysis methods.
Course contents	Electric phenomena in vacuum Coulomb force; electric field, potential energy and electric potential Electrical phenomena in dense media Conductors, capacitors, dielectrics, electric current Magnetic phenomena in vacuum Lorentz force, magnetic field, Biot-Savart law, Ampère law, induction Magnetism in the matter Fields M and H

	Electromagnetic waves in vacuum Maxwell equations, energy, power and intensity of the field, radiation pressure Interference, diffraction and polarization Waves in dense media Reflection, refraction, optics
Teaching methods	Lectures (hour/year): 45 Excercise classes (hour/year): 38 Practical activities (hour/year): 0 Lectures are based on explanations and practical examples, using the blackboard. Excercise classes consists in solution of problems and exam exercises on the blackboard, encouraging students' active participation.
Reccomended or required readings	Reference textbook: Mazzoldi-Nigro-Voci, ISBN: 8879591525. There are many equivalent textbooks, however. Brief lectures videos prepared by the teacher and covering the whole course are available on the e-learning platform KIRO, including notes and useful links: see http://www-3.unipv.it/fis/fisica2/EleInfoBio/index.pdf
Assessment methods	Final exam will be written, with optional oral if the score of the written exam is 24/30 (maximum possible). The written exam lasts 2h and consists of 6 exercises. Correct solution of 2-3 of these normally is sufficient for a positive exam. The oral exam starts with a revision of the written part, then further questions on general topics of the course will be asked, their complexity depending on the student's knowledge. Oral exam lasts 15-20 minutes.
Further information	
Sustainable development goals - Agenda 2030	$lbl_legenda_sviluppo_sostenibile