UNIVERSITÀ DI PAVIA

Anno Accademico 2019/2020

BIOPHOTONICS B

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	ELECTRONIC ENGINEERING
Curriculum	PERCORSO COMUNE
Year of study	2°
Period	2nd semester (02/03/2020 - 12/06/2020)
ECTS	3
Lesson hours	23 lesson hours
Language	Italian
Activity type	WRITTEN AND ORAL TEST
Teacher	MINZIONI PAOLO (titolare) - 3 ECTS
Prerequisites	Having passed Physics 2 exam, thus demonstrating a proper comprehension of the origin and properties of electromagnetic waves.
Learning outcomes	The main goal of the course is to provide information about photonic techniques recently developed in the biomedical field for diagnosis and treatments. At the end of the course the student will be able to: 1.Understand the different possibilities offered by photonic technologies 2. choose the right components for different applications 3.Develop critical comparisons between different techniques 4. Properly communicate, by also using adequate graphical materials, the working principle of different photonic systems

	5.Evaluate the possibility to modify an existing apparatus so as to comply with changes in the experimental needs.
Course contents	The course coers 10 main topics: 01- Short review of biological systems 02- Optical Imaging 03- Raman 04- Biosensors 05- Microfluidics 06- Optical trapping 07- Optical devcies for cell manipulation 08- Acoustofluidics 09- Implantable biophotonic systems 10- Photo dynamic therapy
Teaching methods	Lectures (hours/year in lecture theatre): 23 The possibility to carry out some lessons directly at the Integrated Photonics Lab will also be avaluated
Reccomended or required readings	We will mainly refer to scientific papers and on the slides used in the lessons The material will be made available by using the course website
Assessment methods	The exams consists in a presentation prepared by the student in which a particular topic is treated in detail and on a general discussion about the techniques presented in the course
Further information	=
Sustainable development goals - Agenda 2030	$lbl_legenda_sviluppo_sostenibile