



UNIVERSITÀ DI PAVIA

Anno Accademico 2017/2018

BIOMEDICAL OPTOELECTRONICS	
Enrollment year	2016/2017
Academic year	2017/2018
Regulations	DM270
Academic discipline	ING-INF/06 (ELECTRONIC AND INFORMATION BIOENGINEERING)
Department	DEPARTMENT OF ELECTRICAL, COMPUTER AND BIOMEDICAL ENGINEERING
Course	BIOENGINEERING
Curriculum	Bioingegneria delle cellule e dei tessuti
Year of study	2°
Period	2nd semester (05/03/2018 - 15/06/2018)
ECTS	6
Lesson hours	45 lesson hours
Language	Italian
Activity type	WRITTEN AND ORAL TEST
Teacher	MERLO SABINA GIOVANNA (titolare) - 6 ECTS
Prerequisites	Electromagnetic waves. Electronic circuits. Basic principles of physiology.
Learning outcomes	The course represents a general introduction to the applications of photonics in the biomedical field.
Course contents	Topics include light, light-matter interaction, spectroscopy, microscopy, optical fibers, lasers, photodetectors, optical sensors, optical biosensors, fiber-optic sensors, light/tissue interactions. Applications to diagnostics and therapy are illustrated. Principles of operation of Fluorocytometers, Laser Doppler flowmeter, Pulsed Oximeters, Optical coherence tomography are discussed. Seminars will cover research activities in the field carried on in laboratories of the Università di Pavia.
Teaching methods	Lectures (hours/year in lecture theatre): 45

	Practical class (hours/year in lecture theatre): 0 Practicals / Workshops (hours/year in lecture theatre): 0
Reccomended or required readings	Lecture slides are provided by Prof. Merlo to the students who are attending the class. Suggested: Tuan Vo-Dinh, editor. Biomedical Photonics. CRC Press, 2003 - M. H. Niemz. Laser-Tissue interactions. Springer, 1996
Assessment methods	The final exam consists in a closed-book written test
Further information	The final exam consists in a closed-book written test
Sustainable development goals - Agenda 2030	\$lbl_legenda_sviluppo_sostenibile