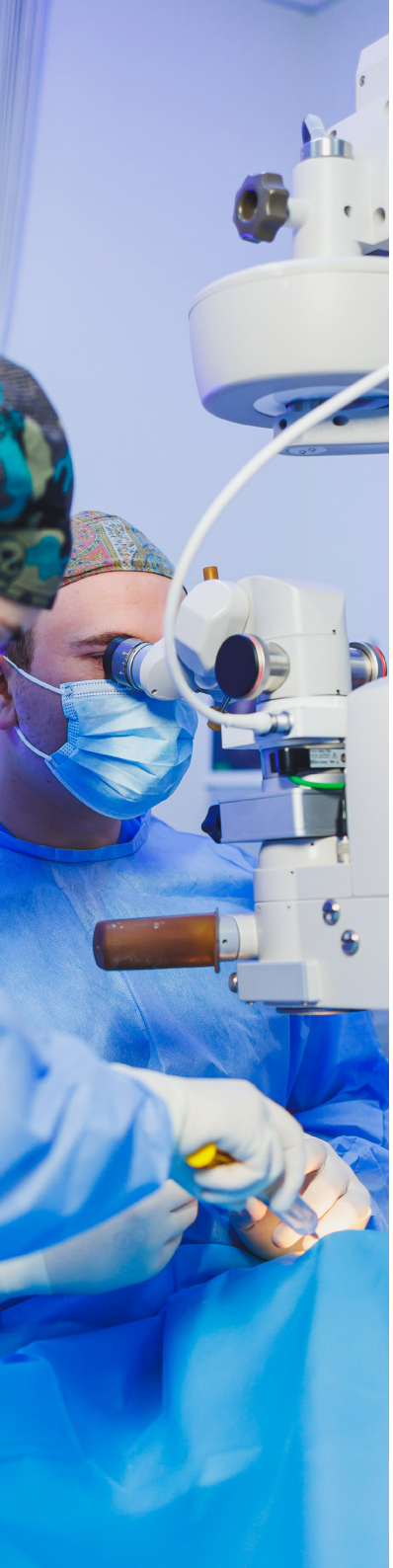

Partenerships:

ies INSTITUT D'ÉLECTRONIQUE ET DES SYSTÈMES

cnrs

More informations:

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https://sciences.edu.umontpellier.fr/
https://idil.edu.umontpellier.fr/en/

Faculté des Sciences Montpellier

Mention EEA

- Master IDIL -
Interdisciplinary In-Lab

Photonics & Electronic Sensors for Environment and Health

MASTER

MASTER IDIL ?
WHAT IS IT ?

This program provides a Master's degree related to photonics & electronic sensors, with a focus on environment and health applications. Photonics is the science of lightwaves that recently became ubiquitous in everyday life as, coupled to electronics, it offers unrivaled performances and compact systems in almost any domain! Thanks to the IDIL Master's program, you will learn through research with unique in-laboratory courses, thus enabling you to acquire state-of-the-art skills to apprehend novel technologies involving photonics and electronics sensors. Along with standard academic courses provided by the electrical engineering department, you will develop the necessary competencies to address research and development engineering positions or Ph.D. positions in any domain that involves photonics and/or electronics, notably for environment and health applications.

UNIVERSITÉ DE MONTPELLIER

FACULTÉ DES SCIENCES DE MONTPELLIER

idil UNIVERSITÉ DE MONTPELLIER

Master IDIL - Photonics & Electronic Sensors for Environment and Health

Description:

Sensors are omnipresent in our modern world. To give just a few examples: in the environment, they are used to detect and quantify the presence of pollutants in water or the atmosphere; in medicine, they enable 2D or even 3D imaging of the eye or arteries, or the early diagnosis of diseases. Most of the latest high-performance sensors are based on electronic or optical/ photonic components, and we don't even know it. Against this backdrop of ever-increasing and more demanding demand, the IDIL Master's degree «Photonic & electronic sensors for the environment and health» aims to train highly qualified personnel in the field of electronic and photonic sensors, with a focus on applications in the environment and health, supported by long stays in research laboratories. Graduates can then choose to complete their training to become researchers in the public or private sectors, responsible for developing new systems that open up the field of possibilities for the future.

The training program is supported by the Institut d'Électronique et des Systèmes (IES), an international Univ. de Montpellier / CNRS research laboratory in the field of sensors and photonics. Supervised by renowned researchers, you will learn to master state-of-the-art experimental techniques enabling you to design and manufacture lasers, sensors, detectors and other key components using cutting-edge technological equipment, right through to the application of these components, particularly in the environmental and health fields.

Application:

Any student with an undergraduate degree related to electronics, photonics or in general to applied physics may apply for the first year of the master's course (please note that in France the duration of a master's degree is 2 years).

Funding:

Special grant for international newcomers who are studying in France for the first time (€5400 awarded over a period of 2 years), and a 6-month in-laboratory funded internship in M1 (first year) for all students.

Teaching units & Skills:

Master 1 - Semester 1:

- Academic core courses: Analog Electronics, Sensors & Associated Systems, Lasers & Photodiodes
- Original in-laboratory course at IES
- General tools: Transversal skills, Trans-disciplinary courses
- Personal project

Master 1 - Semester 2:

- Internship

Master 2 - Semester 1:

- Academic core courses: Signal Processing + 2 courses among Photonics Instrumentation & Metrology, Technology & Design Tools for Sensors, Embedded Electronics & Communication, Microwaves, Microwaves Components & Noise, Practical Photonics
- General tools: Transversal skills, Trans-disciplinary courses
- Multidisciplinary project

Master 2 - Semester 1:

- Internship

Outcome positions:

Engineer or researcher, in industry or academic structures, involved in any domain such as:

- Environment *(air/water pollution monitoring, lidar measurements)*
- Health & Living life *(Diagnosis and care systems, e.g. for ophthalmology, surgery, blood measurements...)*
- Agro-environment *(Sensing, Plants monitoring...)*
- Telecommunications
- Defense & security
- Spatial *(communications, astronomy, lidars...)*

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