



POLITECNICO  
DI TORINO

POLITO

July 10<sup>th</sup> - 14<sup>th</sup> 2017

SUMMER SCHOOL

Building tomorrow society:  
NanoElectronics & Photonics

*Nano-electronics, Photonics, and More than Moore technologies such as MEMS are three of nowadays "Key Enabling Technologies".*

*The Summer School aims at providing an introduction to micro&nano devices and photonics, with a hands-on approach that alternates lectures and experimental activities. The applicative focus will be mainly on the uses of these technologies in pervasive sensing, one of the pillars to enable "smart" applications, such as structural health monitoring, condition based maintenance, home automation...*

*During the week, students will be involved in the characterization of micro&nano devices and in the design and realization of an all-optical fiber sensor.*

*All the activities will be held in English.*

**Location:** Politecnico di Torino

**Requirements:** the program is designed for undergraduate students who have completed at least two years of a Bachelor program in ICT (Electronics, Computer Engineering, Telecommunications, Physics).

**Application and fees:**

The total fee of 500 euros covers:

- ↘ 1-week intensive Summer School with lectures and labs experiences (40 hours);
- ↘ PoliTo tutoring for the whole academic activity;
- ↘ Visit to a research lab/company;
- ↘ Welcome cocktail and "arrivederci" dinner;
- ↘ Insurance coverage for accidents occurring on the university premises;
- ↘ Wi-Fi connection.

Flight tickets, visa fees, accommodation, meals and travel/medical insurance are not included.

Students will receive 4 ECTS credits upon successful completion of a final exam.

Please visit the Summer Schools website for detailed information on modalities and timing for the online application:

[http://international.polito.it/courses/summer\\_schools](http://international.polito.it/courses/summer_schools)

Application deadline: May 31<sup>st</sup>, 2017

## Program

### Day 1

Lecture: application domains of nano-electronics and photonics;

Lab: use of basic instruments (e.g. oscilloscopes and acquisition boards) and fundamentals of signal processing (filtering of data, FFT).

### Day 2

Lecture: design and fabrication of micro/nano-electronic components, example of MEMS devices;

Lab: CAD tools for micro&nano devices, and measurements using commercial MEMS devices.

### Day 3

Lecture: photonics for sensing;

Lab: design of the optical sensor.

### Day 4

Lecture: photonics for communications;

Lab: assembly and testing of the selected optical sensor.

### Day 5

Visit to a research lab or a HighTech company; exam, grading, and final ceremony.

