Master of Science in MICROENGINEERING

2-year program - 120 ECTS

Possible Minors:
- Biomedical Technologies
- Computational Science & Engineering
- Energy
- Management, Technology and Entrepreneurship
- Science, Technology and Area Studies
- Space Technologies

Possible Specializations:
A Optical Engineering
B Micro- and Nanosystems
C Robotics

Industrial internship
The program includes a minimum 8-week long compulsory internship.

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Core courses
- Product design: managing projects and innovations
- Product design in a team
- Systems engineering

Optical Engineering
- Image optics
- Optical Detectors
- Optics laboratories
- Selected topics in advanced optics

Micro- and Nanosystems
- Advanced MEMS
- Materials & Technology of microfabrication
- Modeling and simulation of Microsystems
- Nanotechnology

Robotics
- Applied machine learning
- Mobile robots
- Robotics practicals
- Robotique industrielle et appliquée

Compulsory module

Optional courses according to compulsory module

Advanced MEMS
- Optical Engineering
- Image processing I, II
- Materials & Technology of microfabrication
- Microelectronics
- Mobile robots
- Modeling and simulation of microsystems
- Nanotechnology
- Optical detectors
- Robotique industrielle et appliquée
- Scaling laws in micro- and nanosystems
- Selected topics in advanced photonics
- Stochastic methods
- Techniques d'assemblage

Free optional courses
- Advanced control systems
- Advanced machine learning
- Advanced satellite positioning
- Analog circuit design I, II
- Analyse de produits et systèmes
- Audio
- Biomedical optics
- Biomicroscopy I, II
- Circuits intégrés I
- Commande d'actionneurs à l'aide d'un microprocesseur + TP
- Commande non linéaire
- Computational motor control
- Computer-aided engineering
- Distributed intelligent systems (pas donné 2016-17)
- Evolutionary robotics
- FabriSIM practicals
- Fabrication assistée par ordinateur
- Fundamentals and processes for photovoltaic devices
- Fundamentals of biophotonics
- Haptic human robot interfaces
- Integrated optics
- Large-area electronics: devices and materials
- Laser microprocessing
- Lasers : theory and modern applications
- Machine learning programming
- Model predictive control
- Nano/Advanced MEMS practicals
- Nanobiotechnology and biophysics
- Optical communications
- Opticalwave propagation
- Optics laboratories II
- Photomedicine
- Photonic micro- and nanosystems
- Photonic systems and technology
- Physics of photonic semiconductor devices
- Printed systems and large area manufacturing
- Propagation of electromagnetic waves
- Quantum electrodynamics and quantum optics
- Quantum optics and quantum information
- Sensors in medical instrumentation
- Space mission design and operations
- System identification
- Transducteurs et entraînements intégrés

A Specialization in Track A, B or C is delivered if 30 ECTS are obtained within a track.