POLYTECH©
NICE SOPHIA

ENGINEERING SCHOOL

Ministry for Higher Education and Research

UNIVERSITÉ **CÔTE D'AZUR**

Study in France, **build your future**

UNIVERSITÉ CÔTE D'AZUR

POLYTECH NICE SOPHIA

Live on the French Riviera **a unique place to study**

Polytech Nice Sophia is the polytechnic engineering school of **Université Côte d'Azur**, in the South of France. It is a public school of the Ministry of Higher Education, Research and Innovation. It is part of the group of state polytechnic engineering schools within the POLYTECH network. It is accredited by the Commission des Titres d'Ingénieur (CTI).

Polytech Nice Sophia is at the center of a synergy between education, research and business. It is located on the SophiaTech campus in the heart of the **Sophia-Antipolis technology park**.

With a broad range of scientific disciplines, a strong alumni community, and the close connection to high-level academic research — supported by numerous teacher-researchers — and the active participation of professionals from various sectors, the School offer students solid preparation to meet today's and tomorrow's engineering challenges.

Courses On offer → 8 spécialities

SMART BUILDING

Civil engineering - Building - Design - Works - Thermal -Structure - Smart building - Sustainable development

ELECTRONICS

Analog circuits - Micro-electronics - Embedded systems - Telecommunications - Signal processing - Robotics - Embedded software - Networks - Antenna - Radar

BIOLOGICAL ENGINEERING

Toxicology - Pharmacology - Bioinformatics for biology - Modelling for biology - Risk assessment - Regulatory affairs - Biotechnology - Human health - Environment - Safety of chemical and biological products

WATER ENGINEERING

Hydrology - Urban hydraulics - Modelling and simulation - Risk management - Use management - Hydro computing - Network sizing and management - Surface water and groundwater - Resilience - Smart water

COMPUTER SCIENCE

Software architecture - Cyber security - Data mining - Multimedia engineering - Ambient computing - Computer science and mathematics applied to finance and insurance - Human machine interactions - Software security - Ubiquitous networking - Web

APPLIED MATHEMATICS AND MODELLING

Applied mathematics - Modelling - Computer science - Algorithm design - Equation - Numerical resolution - Finance and insurance - Numerical engineering - Numerical mechanics - Data science

ROBOTICS

Autonomous systems - Experimental robotics - Electronics - Mechanics - Automatic - Programming - Embedded software - Data processing and data fusion - Sensors - Artificial intelligence & learning - Vision

Sustainable Smart Building

The building specialisation trains generalist engineers for the design, construction, and management of sustainable and intelligent buildings.

SUBJECTS COMMON TO ALL ENGINEERS

- 120 hours of English to B2 level
- 250 hours of humanities: management economics, ethics, responsibility...
- 500 hours of project learning
- Hackathon-style working sessions with business coaches
- Sustainable Development Training

SUBJECTS SPECIFIC TO THE SPECIALISATION

3rd year

- Mathematical and computer tools for engineers
- Sustainable Smart Building
- Mechanics
- Structure (reinforced concrete, timber, metal)
- Energy and thermals
- Bioclimatic (air-conditioning)
- Technical equipment (electricity, acoustics, lighting)
- Sustainable Development Training

4th year

- Fluid mechanics and indoor air quality
- Thermodynamics, thermal transfers
- Fire safety and accessibility. Management and operation
- Construction Law
- Sustainable development (Life cycle analysis)

5th year

- Market law. Building pathology
- Research and Innovation
- Choice of an advanced module:
  - Advanced structure
  - Energy and comfort control

70 STUDENTS PER YEAR GROUP

PROFESSIONAL SECTORS:

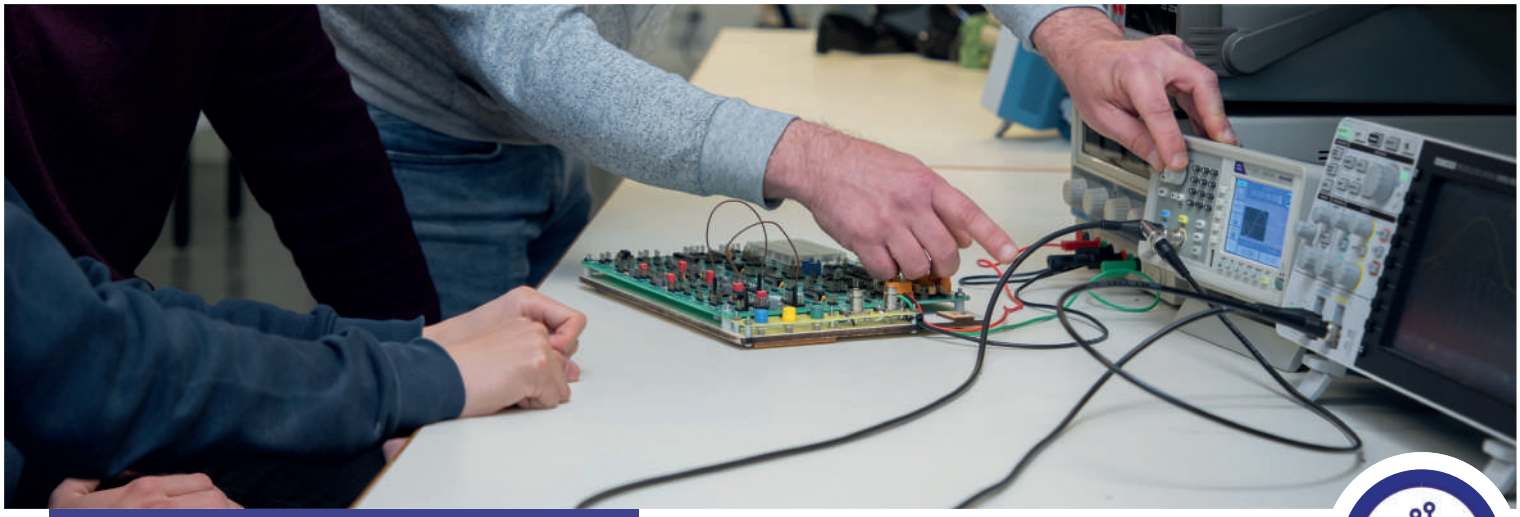
- Public and private construction
- Real Estate
- Manufacturing industry
- Energy

TARGETED SKILLS :

- Design: structure, energy, sensors, uses...
- Construct buildings
- Operate buildings
- Manage real estate projects

Electronics and Embedded Systems

Enrolling in the electronics and embedded systems programme offers you professional opportunities based on skills in the fields of electronics, microelectronics, embedded computing, and networks and telecommunications.



60 STUDENTS PER YEAR GROUP

PROFESSIONAL SECTORS

- Automobile, aeronautics, aerospace and medical industries
- Production and Logistics
- Telecommunications and Networks
- Innovative Technologies
- Research & Development

TARGETED SKILLS

- Embedded systems design
- Design of digital and analog components
- Telecommunications and Networks

SUBJECTS COMMON TO ALL ENGINEERS

- 120 hours of English to B2 level
- 250 hours of humanities: management economics, ethics, responsibility...
- 500 hours of project learning
- Hackathon-style working sessions with business coaches
- Sustainable Development Training

SUBJECTS SPECIFIC TO THE SPECIALISATION

3rd year

- Analog and digital electronics
- Microprocessor systems
- Embedded systems programming, C language
- Digital signal processing
- Applied statistics, random processes
- Projects

4th year

- Electronic systems, active components
- Programmable circuit design, VHDL
- Filtering, Analog signal processing
- Object-Oriented Programming and Design
- Networks and Telecommunication

5th year

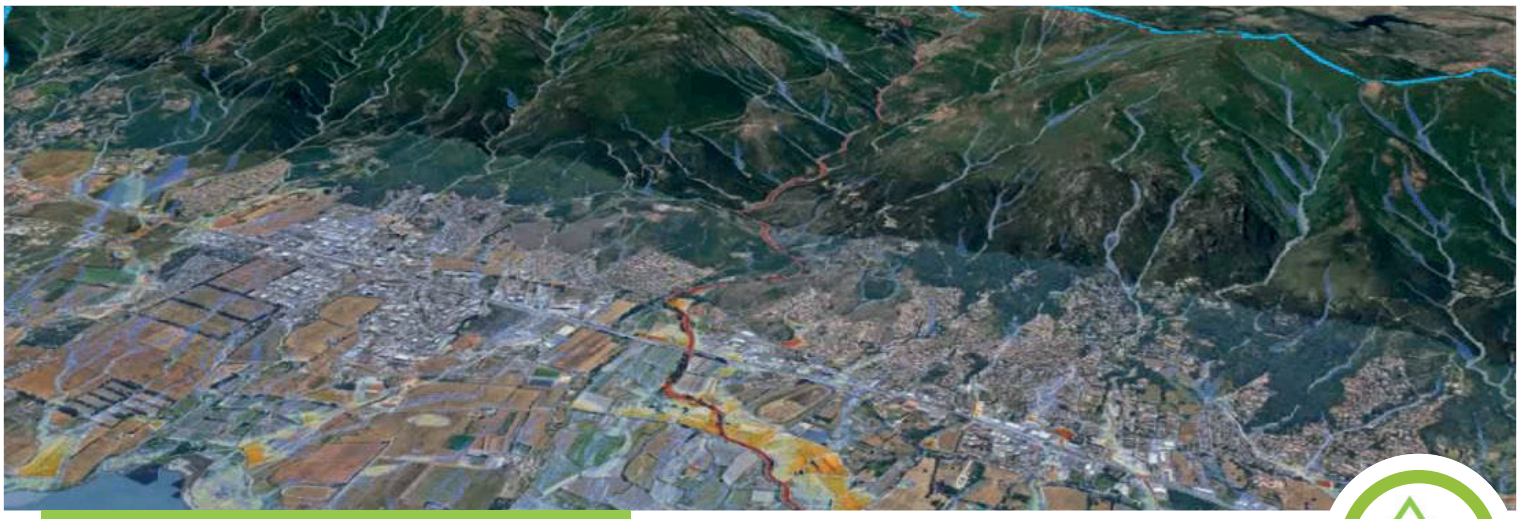
Core subjects: Energy consumption, Digital microelectronics

Choice of minor from 3

- **Microelectronic circuit architecture (MCA):** FPGA SoC design, Verification and Testing, Mixed-signal Technologies, Analog and RF circuit design
- **Embedded systems (ES):** Embedded systems modelling, Embedded Linux, FPGA SoC design, Real time systems, Circuit design methodology, Internet of Things.
- **Telecommunications and Networks:** Network design, Mobile networks, RF design, Certification, Internet of Things

Water Engineering and Landscape Design

This specialisation trains managers who combine expertise in water engineering, plant science, and landscape design with proficiency in business operations and constraints, and natural resource management.



50 STUDENTS PER YEAR GROUP

PROFESSIONAL SECTORS

- Engineering consultancies
- Public services and local authorities
- Major water management operators
- Landscaping companies

TARGETED SKILLS

- Expertise in the fundamentals of water science and urban hydraulics
- Mastering the design and management of landscape developments
- Proficiency in digital modelling and simulation tools
- A multidisciplinary approach to risk issues (flooding, drought), urban planning and civil engineering
- Project and team management

SUBJECTS COMMON TO ALL ENGINEERS

- 120 hours of English to B2 level
- 250 hours of humanities: management economics, ethics, responsibility
- 800 hours of project learning
- Hackathon-style working sessions with business coaches
- Sustainable Development Training

SUBJECTS SPECIFIC TO THE SPECIALISATION

3rd year

- Scientific foundations of engineering (mathematics and mechanics)
- Digital methods applied to water and plant sciences
- Physical environment (geology, hydrochemistry)
- Raising awareness of natural risk management issues
- Construction site management, field visits

4th year

- Geographical Information Systems, data processing, geotechnical and civil engineering
- **Minor in Water:** Hydrology, hydraulics, hydrogeology, river dynamics, water law
- **Minor in Landscaping:** Urban planning and landscaping, natural spaces, landscaped areas, landscape culture

5th year

- Flood risks and regulations, public procurement, climate change
- **Minor in Water:** Digital modelling, drinking water networks, sanitation, coastal engineering, maritime hydraulics
- **Minor in Landscaping:** Edible landscaping, biotechnologies and plant health, economics in landscape design

Biological Engineering

This specialisation trains versatile engineers in the fields of pharmacology, toxicology and bioinformatics. Graduates go on to work in sectors such as health, pharmaceuticals, the chemical, cosmetic, aromas and fragrances; agrifood, plant protection and biocide industries

SUBJECTS COMMON TO ALL ENGINEERS

- 120 hours of English to B2 level
- 250 hours of humanities: management economics, ethics, responsibility...
- 500 hours of project learning
- Hackathon-style working sessions with business coaches
- Sustainable Development Training

SUBJECTS SPECIFIC TO THE SPECIALISATION

3rd year

- Molecular biology, Neurobiology and Signalling
- Organic, analytical and biochemistry
- Physiology of major functions and good laboratory practices
- Microbiological engineering, immunology and virology
- Mathematics, Computer Science and Physics applied to Biology
- Data processing, statistics for biology, AI awareness

4th year

- The fate of drugs in the body
- Introduction to environmental toxicology
- Genetical engineering, Neuroscience
- Chemistry of natural substances, Plant physiology
- Data bases, Omics, Innovation and Creativity, Tissue engineering, Law and Quality

Choice of minor from 3 :

- **Pharmacology and Biotechnologies (PB):** Molecular and cellular pharmacology, microbial and plant biotechnologies. Drug and medical equipment life cycles, pharmaceutical chemistry
- **Toxicology and Environmental Health and Safety (TEHS)**: Exposome, One Health, Preclinical Toxicology, Heakth, environment and ecotoxicology, Risk management, Physiopathologies, Immunotoxicology, Food quality and safety
- **Bioinformatics and modelling for biology (BIMB):** Algorithms, Modelling and simulation, Object oriented programming

5th year

- Drug Design
  - **PB:** Physiopathology and Pharmacology, Drug marketing and engineering, Biotechnologies and health
  - **TEHS:** Toxicovigilance, Quality and Certification Norms, Professional toxicology, HSE and industrial risks, Regulatory affairs
  - **BIMB:** Molecular modelling, Symbolic AI, Biological Software, Databases and Integrative Biology, Omics and AI

50 STUDENTS PER YEAR GROUP

PROFESSIONAL SECTORS

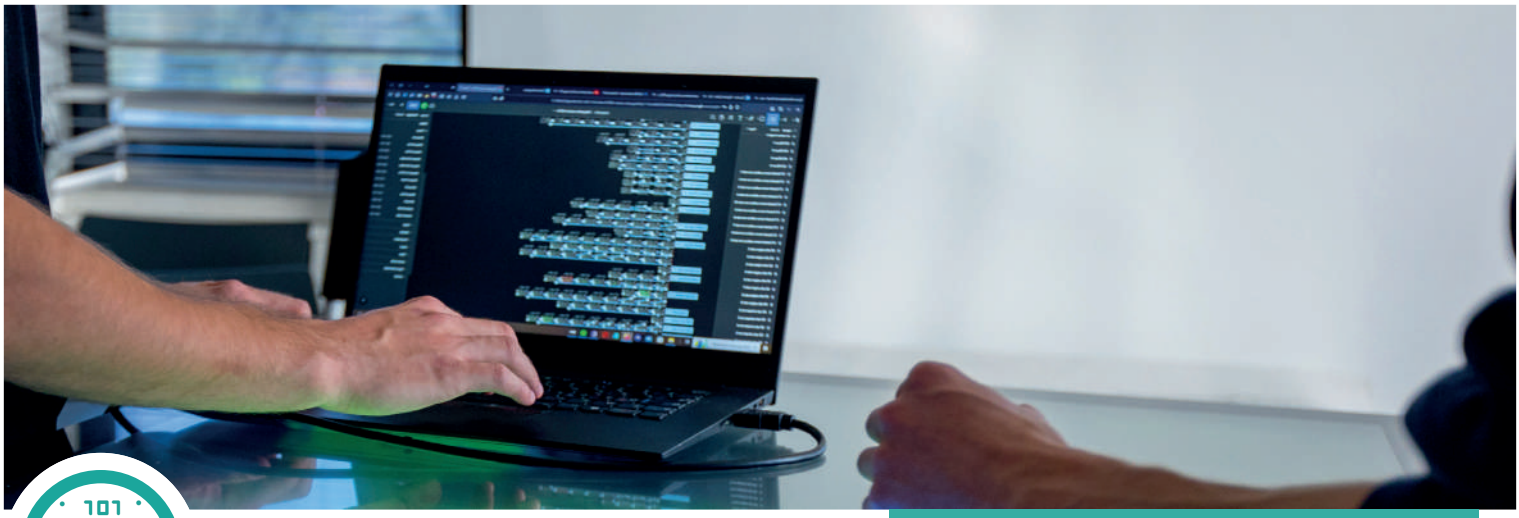
- Research & Development
- Preclinical Research and Toxicovigilance
- Clinical Research
- Regulatory Affairs
- Health, Safety and Environment
- Quality Assurance
- Marketing
- Intellectual Property

TARGETED SKILLS

- Toxicological risk management in human health and environment
- Development of new therapeutic treatments
- Biological system modelling

Computer Science

The Computer Science specialisation, centered around software design and development, trains students to work in computer science engineering and full stack development. In the final year, a specialization minor allows students to enhance their skills in a key area of today's and tomorrow's computing.



SUBJECTS COMMON TO ALL ENGINEERS

- 120 hours of English to B2 level
- 250 hours of humanities: management economics, ethics, responsibility
- 800 hours of project learning
- Hackathon-style working sessions with business coaches
- Sustainable Development Training

SUBJECTS SPECIFIC TO THE SPECIALISATION

3rd year

- Knowledge harmonization period for new students
- Programming and Algorithms
- Databases, architecture and networks
- Front-end and Back-end projects
- Event-driven programming and human–machine interface
- Languages and compilation

4th year

- Software design and development
- Middleware, competition, programming paradigms
- Theoretical computer science
- Full-stack development projects and DevOps approach
- Human-machine interface (HMI), Augmented Reality
- Software security
- Artificial Intelligence and Machine Learning

5th year

Choice of minor from 5

- **Eco-design of software systems and architecture (SSE)**
- **Cybersecurity**
- **Human-machine interface (HMI)**
- **Internet of Things and Cyber-Physical Systems (IoT-CPS)**
- **Artificial Intelligence and Data Engineering**

90 STUDENTS PER YEAR GROUP

PROFESSIONAL SECTORS

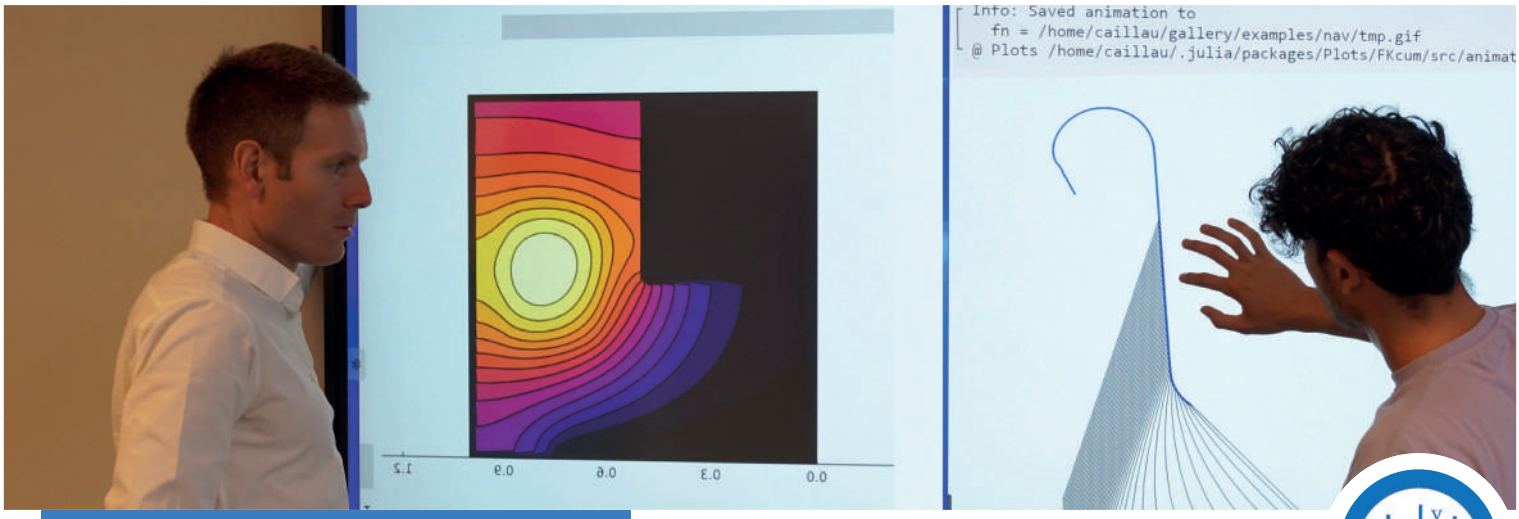
- Information systems and services
- Information technology industry
- Transport industry
- Finance and Insurance
- Software Research and Development
- Cybersecurity

TARGETED SKILLS

- Software design and development
- Eco-design of software
- DevOps approach
- Software quality and performance
- IT project management and agile methods
- Technical expertise depending on the final year specialisation

Applied Mathematics and Modelling

The Applied Mathematics and Modelling specialisation trains highly skilled, versatile engineers in scientific computing, capable of modelling, simulating, and optimizing complex systems.



50 STUDENTS PER YEAR GROUP

PROFESSIONAL SECTORS

- Information and communication technologies
- Finance and insurance
- Industry: space, transport, aeronautical, energy, health, environment
- Expertise in engineering consultancies, research

TARGETED SKILLS

- Modelling, simulating and optimising complex systems
- Mastering programming tools and languages for scientific computing
- Solving deterministic and stochastic problems

SUBJECTS COMMON TO ALL ENGINEERS

- 120 hours of English to B2 level
- 250 hours of humanities: management economics, ethics, responsibility
- 800 hours of project learning
- Hackathon-style working sessions with business coaches
- Sustainable Development Training

SUBJECTS SPECIFIC TO THE SPECIALISATION

3rd year

- Mathematics for engineering
- Numerical analysis
- Ordinary differential equations
- Probabilities and statistics
- Algorithms & programming, operating systems

4th year

- Partial differential equations
- Optimisation and machine learning
- Stochastic processes
- Object-oriented design and programming
- Databases
- Applications (finance, data, bio, spatial, ecological transition...)

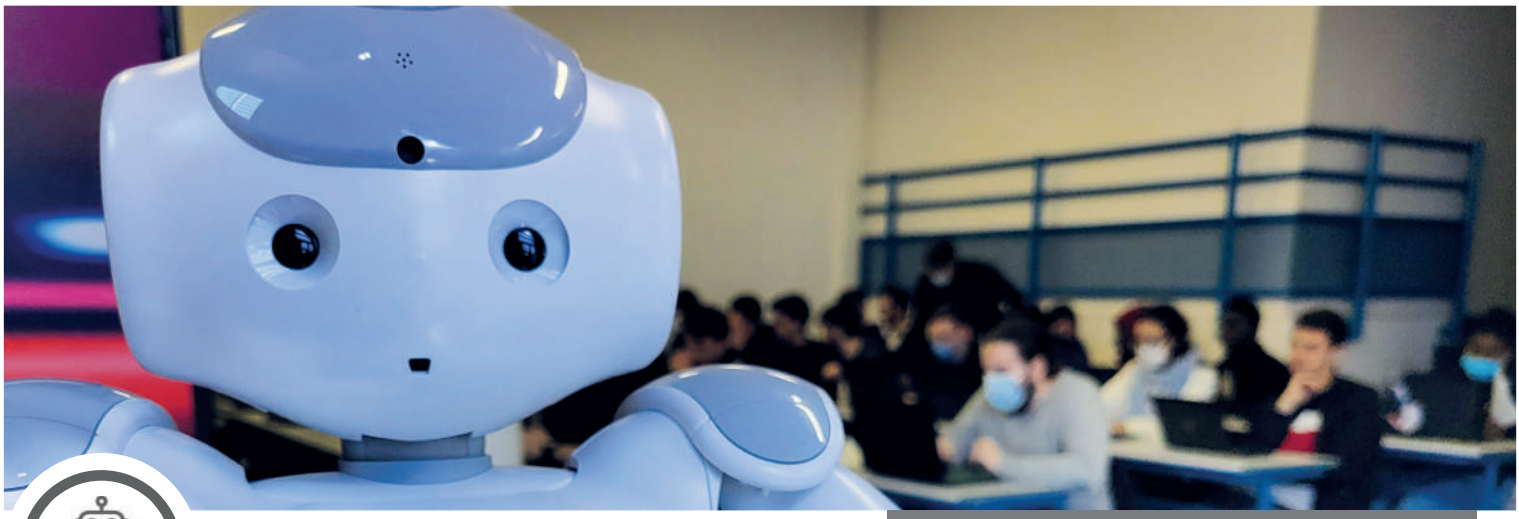
5th year

A specialization semester to be chosen from three minors :

- **Computer Science and Mathematics applied to Finance and Insurance**
- **Digital Engineering**
- **Data Science**

Autonomous Robotics

The Robotics specialisation trains generalist engineers proficient in the design, construction, and programming stages of an autonomous and intelligent robotic system.



SUBJECTS COMMON TO ALL ENGINEERS

- 120 hours of English to B2 level
- 250 hours of humanities: management economics, ethics, responsibility
- 800 hours of project learning
- Hackathon-style working sessions with business coaches
- Sustainable Development Training

SUBJECTS SPECIFIC TO THE SPECIALISATION

3rd year

- Mathematics for robotics, algorithmics and programming, analog electronics, automatics, signal processing, mechanics, energy sources and conversion, computer aided design, manufacturing
- Experimental robotics

4th year

- Object oriented programming (C++, Python)
- Real time systems and microcontrollers
- Digital electronics, robot oriented operating systems, simulation
- Digital control, modelling of dynamic systems
- Artificial intelligence, neurone networks, computer vision
- Robotics and data fusion, sensors
- R&D project in robotics

5th year (taught in English)

- Embedded Linux, connected objects
- Autonomous vehicles, estimation and diagnosis, operational safety
- Machine learning for decision-making
- Wireless communication (3G-5G)
- Nonlinear estimation and control
- Computer vision
- RF localisation systems
- R&D project in robotics

24 STUDENTS PER YEAR GROUP

PROFESSIONAL SECTORS:

- Research & Development
- Production, maintenance and logistics
- Automobile, aeronautical, naval and rail industries
- Large industrial companies and consulting firms

TARGETED SKILLS

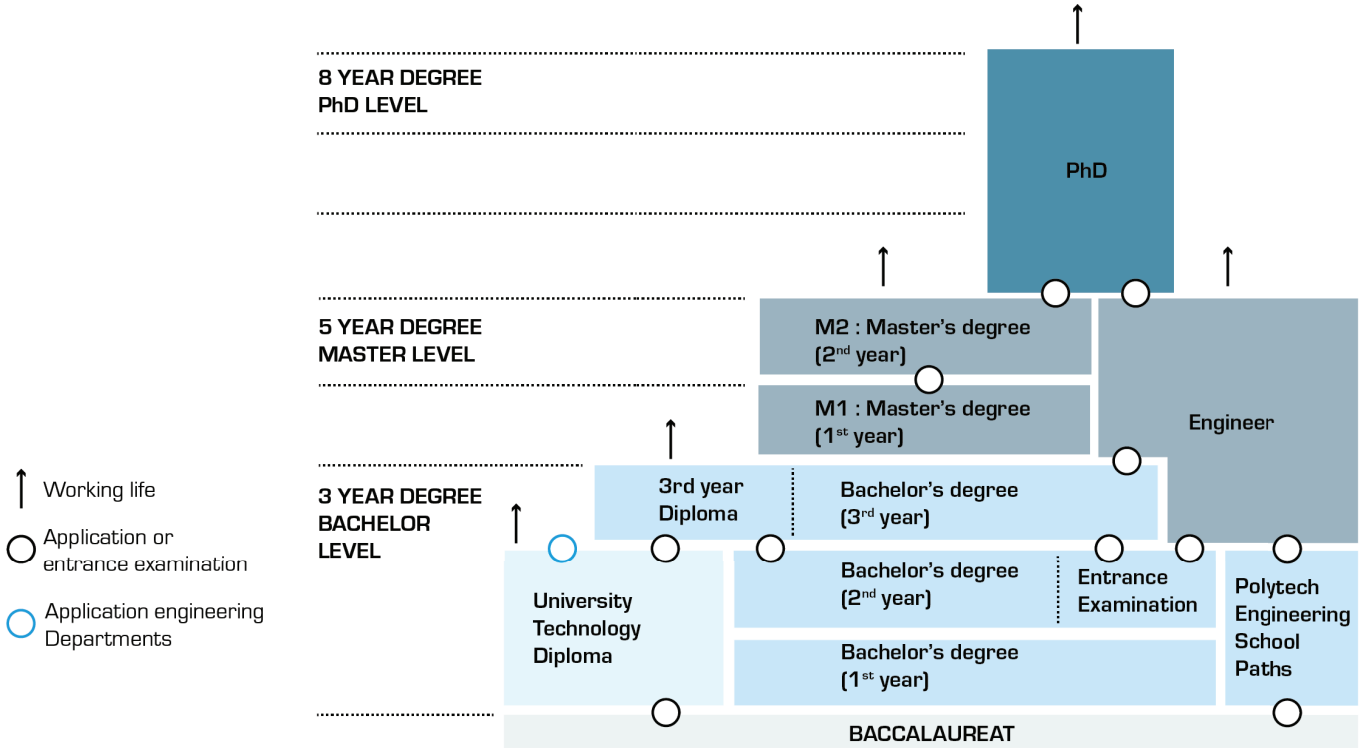
- The design of autonomous systems
- The construction of intelligent robots
- The synthesis and programming of functions aimed at robot autonomy

Join us!
Admissions

Each year Polytech Nice Sophia accepts more than 350 new students in the engineering cycle and 120 students in the preparatory cycle (PeiP).

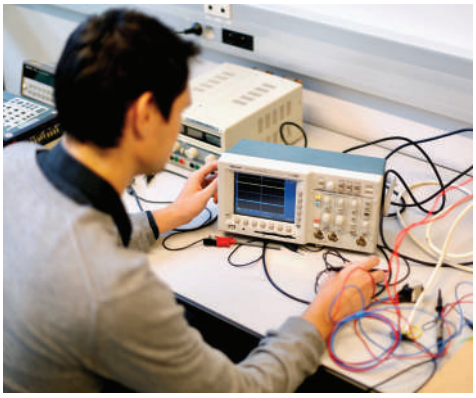
Admission is diversified : the varied study paths correspond to the growing demand from companies wishing to recruit engineers with multiple profiles and talents.

POLYTECH NICE SOPHIA RECRUITS CANDIDATES FROM DIFFERENT BACKGROUNDS



French education system graphic

www.polytech-reseau.org/postuler-a-polytech



Student life an environment for succes

...at the heart of the university

Polytech Nice Sophia is the engineering school at Université Côte d'Azur.

Since 2016, it has held the prestigious Initiative d'Excellence (Idex) label and is one of the 10 best research-intensive universities in France.

A campus within the Technopole

The SophiaTech Campus houses research laboratories, a fablab, a learning center located in the heart of the European technology park Sophia Antipolis.

Accommodation, catering, classrooms in an exceptional setting, between the sea and the moutains, at only 20 minutes away from Nice.

ISO 9001 Certified

"Bienvenue en France" Label

Accommodation : Sophia Antipolis is a technology park spread over 5 communes. It is located near major cities: 22 km from Nice, 15 km from Cannes and Grasse, 8 km from Antibes and Juan les Pins. The proximity of CROUS university residences and private residences in Cannes, Antibes, Valbonne and Nice is an asset.

Catering : 2 university restaurants in Sophia Antipolis and a shopping centre (restaurants, bakery, etc.)

Public transport : Transport linked with the cities of Antibes and Nice. An electric bike station and a network of cycle paths is available in Sophia Antipolis.

Community life : Various associations and clubs are offered on site based on students interests : leisure, culture, humanitarian actions, sport,...

Adaptation : The campus is accessible for people with disabilities. Courses are adapted for high-level athletes and artists.

International mobility : Mobility abroad is compulsory in order to obtain an engineering degree : study semesters or internships are opportunities for the personal and professional development of students.

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France's leading network of public university engineering schools
built on academic excellence

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Cti Commission des titres d'ingénieur

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