



# ELECTRONIC & OPTICAL ENGINEERING

## MASTER OF SCIENCE

### ACCREDITATION

Internationally recognized Master's Degree in Science and Technology accredited by the French Ministry of Higher Education and Research.  
This MSc can lead to enrollment in a PhD program.

### KEY WORDS

Fiber optics, Microwaves, Antennas, Computer Networking, Advanced, Devices, Radiation, Photonics, Information Processing, Wireless Systems, Emerging Optical, Technologies, High-bit-rate optical transmission, Satellite Navigation Systems

### SCHOOL PROPOSING THE MASTER

Telecom SudParis

### LOCATION

Telecom SudParis has a 12-acre campus situated 35 minutes from the center of Paris and 20 min away from the gorgeous "Forêt de Fontainebleau", thus offering the advantages of both the city and the countryside.

### STRONG POINTS OF THE SCHOOL

Telecom SudParis is one of the French leading Graduate Schools of Engineering in the field of Information Technology. More than 60 different nationalities are represented on its campus. Telecom SudParis is a flagship in the French research environment.

Strong links with industry have made it possible for Telecom SudParis to reach excellence in active pedagogy, project-based teaching and top-level research. Telecom SudParis, as a member of Institut Mines-Telecom, is a founding member of the Paris-Saclay University.

### INDUSTRIAL PARTNERS

Thales, Alcatel Lucent, CNES, CEA, Laboratoire de photoniques et nanostructures.

### LANGUAGE OF TEACHING

This program is taught entirely in English. Intensive courses of French are available for students prior to the MSc program. French is taught as a foreign language.

### ENVIRONMENT

New services and equipments are very demanding in high-performance components. Electronics and optics offer new technologies allowing the design of very sophisticated systems towards development of mobile phones, computers, household electricals, etc.

### COURSE AIMS

This master aims at preparing experts and specialists in the field of electronics and of optics towards conception and design of communication systems using the very last generation high-performance components.

### PROGRAM

The program includes courses over three semesters, followed by an internship of one semester in an industrial or academic research laboratory.

#### First semester: test and harmonisation

- > Computer science
- > Computing Networking
- > Probability and statistics
- > Microwaves and antennas
- > Fundamentals of Fibre-Optic communications
- > Effective communication
- > French as a foreign language

#### Second semester: Initial training program

- > Radio and Propagation
- > Long Haul Photonic Transmission
- > Advanced Optoelectronic Devices
- > Microwave project
- > French as a foreign language

#### Third semester

##### Refresher

- > Physics and Optoelectronic Devices
- > Communication Networks
- > Digital Communications

##### Core courses

- > Optoelectronique Devices
- > Digital Information Processing
- > Error-Correcting Codes and Coded Modulations applied to Optical Communications
- > Optical Information Propagation and Point-to-Point Transmission Systems
- > Advanced and Next-Generation Optical Transmission Systems
- > Optical Networks
- > Future Trends in Optical Networks
- > Photonic Systems Towards other Applications

##### Elective courses

- > Fonction et Intégration Photonique
- > Nanophotonics

#### Fourth semester

- > Master thesis realized in an industrial or academic R&D laboratory

### ADMISSION REQUIREMENTS

First-class Bachelor's degree or a four-year degree in one of the academic topics offered by the Master's course. Good background in computer science and in mathematics are required.

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### LANGUAGE REQUIREMENTS

#### English

When applying, students must provide evidence of proficiency in the English language. This could include:

- > having English as mother tongue
- > work/studies in an English-speaking country
- > English language official qualification such as:
  - TOEFL: 550/677 (Paper-based) or 213/300 (Computer-based) or 79/120 (Internet-based)
  - IELTS: 5.5/9
  - TOEIC: 750/990
  - Cambridge: CAE (Certificate of Advanced English)

#### French

A good knowledge of French is not mandatory before arrival in France. Intensive courses of French are available for students prior to the beginning of the program. French language classes are included in the programme.

### APPLYING

On-line application at:

<http://www.telecom-sudparis.eu/msc>

### COMPETENCES ACQUIRED

High practical and theoretical knowledge in the optical and electronics science area, with a strong view of application to communication systems.

MSc training also focuses on teamworking, communication skills, innovation and project management.

### TYPICAL JOBS

Researchers and Designers in communication systems relying on high-performance optical and electronical components. Technical Support Engineers, Technical and Commercial Engineers, R&D Engineers, Team Leaders, Project Managers, PhD research.

### COST

12,000 Euros

8,000 Euros Europe and Erasmus zone

### SCHOLARSHIPS

Scholarships are available depending on academic records and countries of origin (companies, governments, embassies etc.). Internships are paid and can help with living expenses during the last semester.

### DURATION

2 years.

### LODGING

Located at the heart of the campus, the Maison des élèves (MAISEL) has 902 comfortable bedrooms and small flats providing accommodation for all students who wish to live on-campus. The monthly rate varies depending on the type of accommodation. Students may be able to claim housing benefit subject to certain conditions.

Services included:

- > Private bathrooms
- > Shared kitchens
- > Washing machines and tumble-dryers • Ironing rooms
- > TV / Games rooms
- > Internet

### CONTACT

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