Université Paris-Saclay

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M2 Quantum, Mathematics, and Computer Science

Master's degree
Specialisation Computer Science
Enrolment type
Formation initiale
Language(s) of instruction
English

The Master 2 QMI aims to present the theoretical aspects, both mathematical and informatics, of the quantum revolution. Courses are held at various partner institutions in the dynamic Saclay plateau, a world-class quantum research hub with several major start-ups and corporate laboratories. It also draws on the ecosystem of the QUANTUM@Paris-Saclay center.

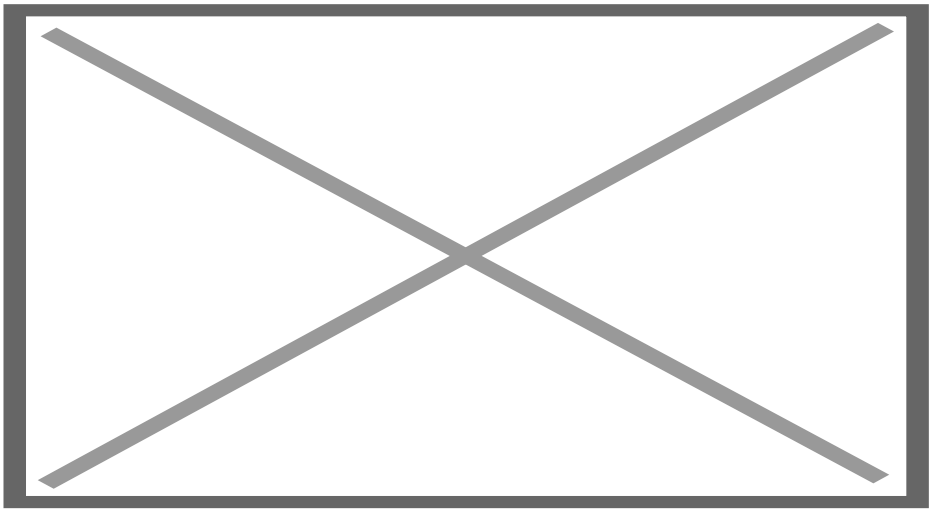
The QMI Master’s (Master 2) is a one-year, full-time program taught in English, dedicated to quantum technologies. Based on the Saclay plateau near Paris — France’s leading scientific hub — it is jointly offered by top institutions including Télécom Paris, École Polytechnique, Université Paris-Saclay, and CentraleSupélec.

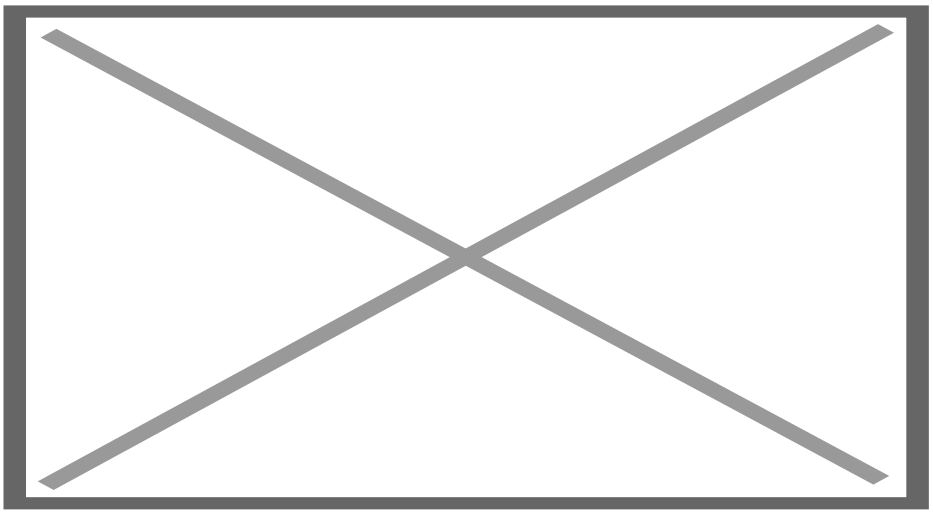
The curriculum includes 14 in-depth courses covering all theoretical, mathematical, and computational aspects of quantum information, from cryptography to error correction codes.

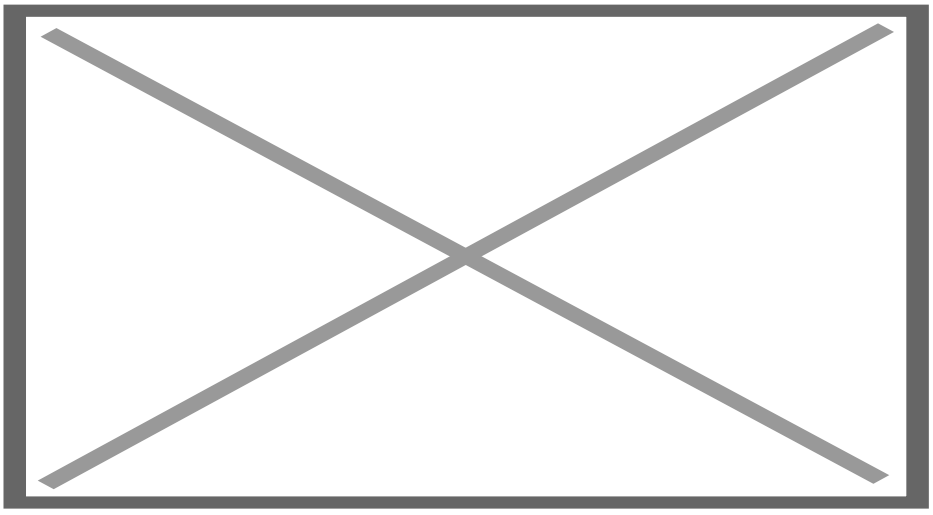
The program also offers strong industry connections with key quantum players like Quandela, Pasqal, Alice & Bob, and IBM, preparing graduates for careers in both academia and the quantum tech industry.

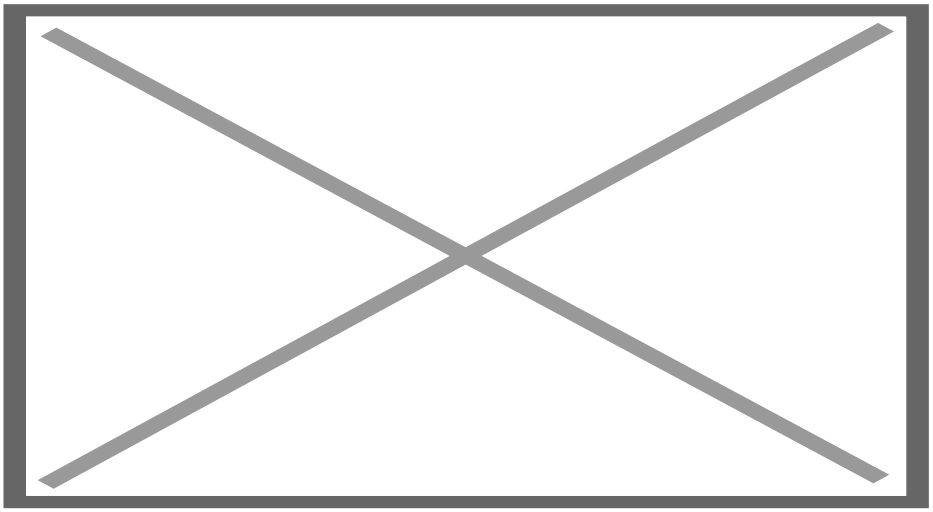
The website presenting the program is https://quriosity.telecom-paris.fr/qmi/qmi.html

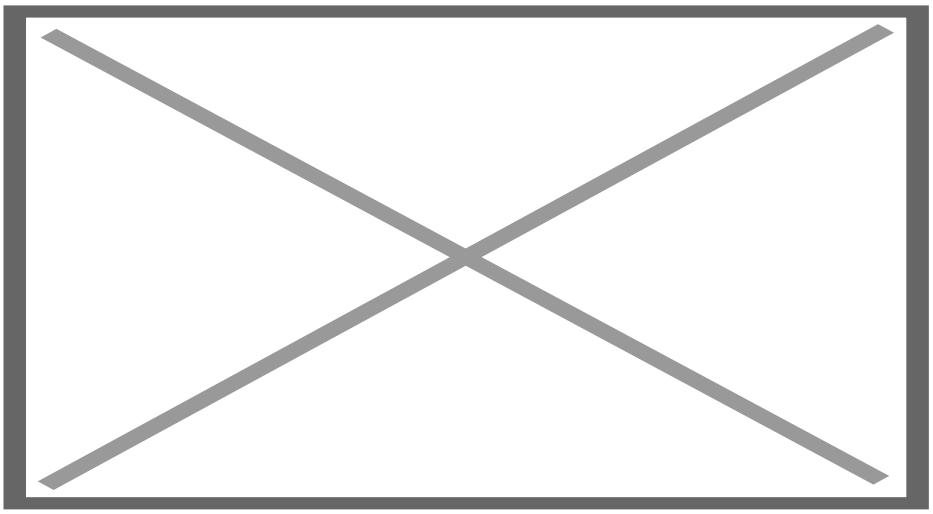
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Information

- Overview
- Application requirements
- Schedule

Présentation

Skills

Understand all aspects of quantum technologies, from both informatics and mathematics;
Master advanced mathematical tools for studying and using quantum information;
Establish contacts with academic and industrial quantum laboratories;
Prepare to work as a researcher in academia or industry.

Objectives

The QMI Master 2 trains students in the theoretical, mathematical, and computer science foundations of quantum technologies. The program includes 14 advanced courses covering the full spectrum of the field, from quantum cryptography to error correction codes.

To graduate, students must complete at least 12 courses (30 ECTS) and carry out a research internship starting in April (30 ECTS).

This program provides a deep understanding of the mathematical tools used in quantum information, fosters connections with academic and industrial laboratories, and prepares students for careers in research, industry, or academia.

Débouchés

Career prospects

R&D Engineer
Design engineer in the industrial sector
Design engineer in the research / scientific sector
Research Engineer
Research Engineer
Development Engineer

Further Study Opportunities

PhD
Engineering, research and development

Admission

Capacity

Available Places

15

Target Audience and Entry Requirements

• Have completed the first year of a Master’s degree (or equivalent) in mathematics, computer science, physics, or a related field, in France or abroad.

• English proficiency (B2 level)

Période(s) de candidature

Inception Platform

From 15/01/2026 to 21/06/2026

Supporting documents

Compulsory supporting documents

Motivation letter.

All transcripts of the years / semesters validated since the high school diploma at the date of application.

Certificate of English level (compulsory for non-English speakers).

Curriculum Vitae.

Additional supporting documents

VAP file (obligatory for all persons requesting a valuation of the assets to enter the diploma).

Programme

Subjects	ECTS	Semester	Lecture	directed study	practical class	Lecture/directed study	Lecture/practical class	directed study/practical class	distanc learni cours
Stage de fin d'année	30	Semestre 2							

Charger le détail

Subjects	ECTS	Semester	Lecture	directed study	practical class	Lecture/directed study	Lecture/practical class	directed study/practical class
Quantum Shannon theory	2.5	Semester 1	12	12				

Charger le détail

Unification of Quantum Algorithms	2.5	Semester 1	12	12				

Subjects	ECTS	Semester	Lecture	directed study	practical class	Lecture/directed study	Lecture/practical class	directed study/practical class
Charger le détail								
Quantum Complexity Theory	2.5	Semester 1	12	12				
Charger le détail								
Quantum Hardware	2.5	Semester 1	12	12				
Charger le détail								
Quantum Compilation	2.5	Semester 1	12	12				
Charger le détail								
Quantum Error Correction	2.5	Semester 2	12	12				
Charger le détail								
Quantum Structures	2.5	Semester 2	12	12				
Charger le détail								
Quantum Non-Locality	2.5	Semester 2	12	12				
Charger le détail								
Convex Optimization	2.5	Semester 2	12	12				
Charger le détail								
Quantum-Safe Cryptography	2.5	Semester 2	12	12				
Charger le détail								
Complex Quantum Systems	2.5	Annualized	12	12				
Charger le détail								
Quantum Machine Learning	2.5	Semester 1	12	12				
Charger le détail								

Subjects	ECTS	Semester	Lecture	directed study	practical class	Lecture/directed study	Lecture/practical class	directed study/practical class
ZX calculus	2.5	Semester 1	10.5	10.5				
Charger le détail								
Tensor computations	2.5	Semester 1	10.5		10.5			
Charger le détail								
Advanced Topics in Quantum Information and Computation	2.5	Semester 1	12	12				
Charger le détail								
Advanced Topics in Quantum Information and Computation	2.5	Semester 2	12	12				
Charger le détail								

Teaching Location(s)

GIF SUR YVETTE

Contact

- **CentraleSupélec SUPPORT SCOLARITE**

  Support scolarité
- **Benoît VALIRON**

  PR

http://www.universite-paris-saclay.fr/formation/master/informatique/m2-quantique-mathematiques-informatique-qmi