Sciences, Technology and Health
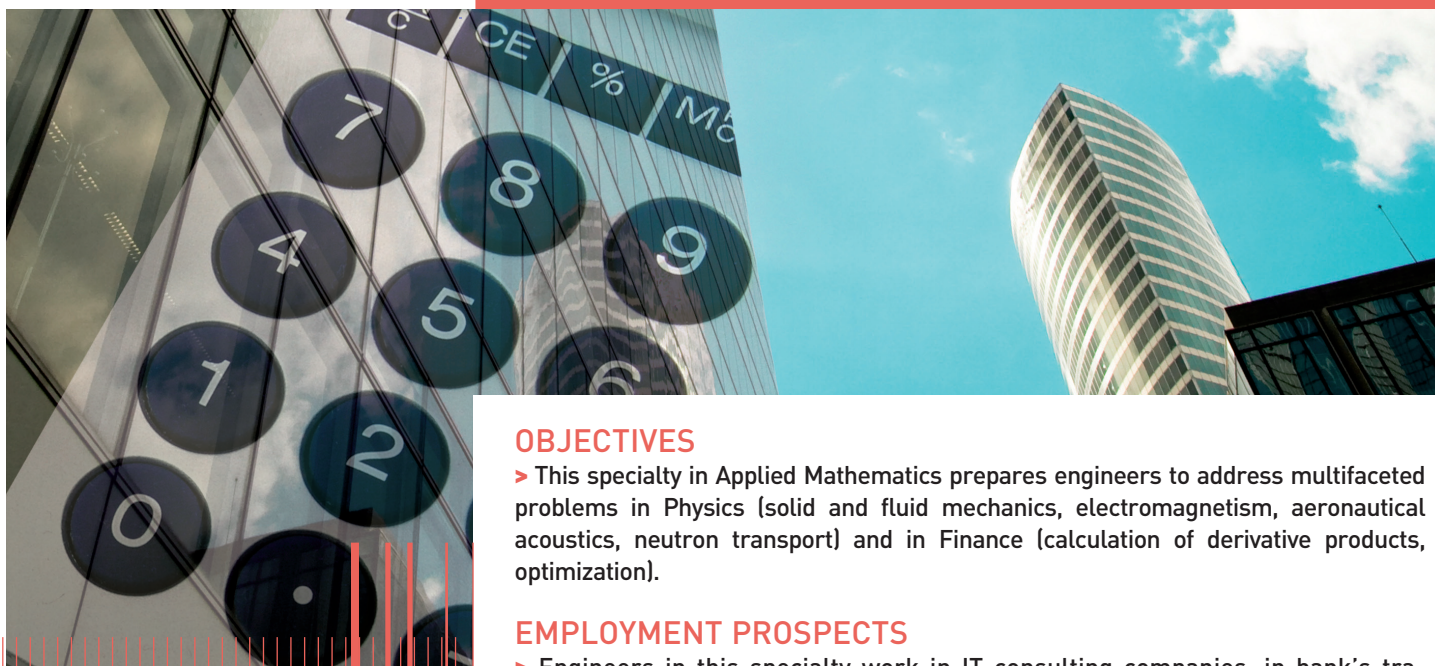
Ingénieur diplômé (Engineering Master Degree)

Major in Scientific Computing Methods & Applied Mathematics

OBJECTIVES

> This specialty in Applied Mathematics prepares engineers to address multifaceted problems in Physics (solid and fluid mechanics, electromagnetism, aeronautical acoustics, neutron transport) and in Finance (calculation of derivative products, optimization).

EMPLOYMENT PROSPECTS

> Engineers in this specialty work in IT consulting companies, in bank's trading rooms, in companies using complex scientific computing codes with huge number of lines, and in insurance companies. They may also integrate major research and development institutions, such as CEA (French Center of Atomic Energy), Dassault, EADS, EDF, ONERA (French Aerospace Lab), Thales. They often qualify for a PhD within the frame of a CFR and CIFRE (agreement signed with a company). Employers particularly appreciate this double curriculum in Sup Galilée and at University.

Thanks to a partnership between Université Paris 13 and **HEC**, engineer-students from Sup Galilée can follow joint courses with HEC's Master in International Finance. Some students may enroll in HEC's Master after finishing their studies in Sup Galilée. An agreement has also been signed with the **Universidad** Autonoma of **Madrid**.

ASSESSMENT AND EVALUATION PROCEDURES

> Knowledge evaluation is organized on a yearly basis. Repeating a year is only allowed once throughout the program. An important part of the program is based on tutored projects.

Engineering candidates must have proficiency in English (European level B2) at the end of the program.

After successfully completing the three-years program, students are awarded the title of Ingénieur diplômé (Master in Engineering) of Université Paris 13, specialty in Applied Mathematics and Modelization. This title is fully accredited by the French "Commission des titres d'ingénieurs" (CTI).

PROGRAM SPECIFIC ADMISSION REQUIREMENTS

> **First year**
• Undergraduates (two years after secondary school) in Mathematics or Computer Science and Mathematics
• Students in Science who have successfully passed the Polytech (previously Archimède) competitive entrance examination
• Students who have successfully completed an accredited Engineering school integration program.
In case you are not sure your situation meets these requirements, please contact the School office for further information (phone and e-mail below).

> **Second Year**
• Selection is based on qualifications and interviews. It is opened to students having completed the first year of Master in Mathematics, Applied Mathematics, mechanics or a first year of an Engineering School that has been accredited by the CTI.

POLYTECH COMPETITIVE ENTRANCE EXAMINATION

> Application before mid-January on:
www.demain-ingenieur.fr
ww.scei-concours.fr

APPLICATION

> Application forms and procedures are available on:
www-galilee.univ-paris13.fr (beginning of March)

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Program Organization

FIRST AND SECOND YEARS
1&2

THIRD YEAR
3

The outcomes of these first years are a broad and in-depth set of knowledge in analysis, numerical analysis and optimization, probabilities, statistics and modelization. The focus is to train students to address any kind of multifaceted problems.

Courses in mechanics (solids and fluids), in stochastic calculus for finance and in financial optimization, train students on applications that they will put in practice throughout interdisciplinary projects.

The first year is more focused on the development of a solid and in-depth basis of knowledge, while the second is more dedicated, in addition to theoretical approaches, on applications that engineers will use during their future careers. Each year of the program comprises 440 hours of courses, tutorials and labs, and 120 hours of projects.

Students will choose a major option in mechanics or in finance. They follow courses in mechanics modelization or in financial engineering.

> GENERAL EDUCATION

In addition to their scientific education, engineer-students follow courses that will introduce them to corporate culture in order to prepare their professional life: economics, security, quality, environment, industrial property rights, law, labor law. English courses train them to the proficiency needed to complete their engineering education.

> INTERNATIONAL

The third year's first semester can be spent abroad, in an American State University (Micefa) or in a University in Quebec (Crepuq). This doesn't entitle the student to a double-degree. Foreign students are also hosted in Sup Galilée's specialty. An agreement of double-degree has been signed with Universidad Autonoma of Madrid and is financed jointly by both countries. We offer fellowships to students of West University of Timisoara with outstanding records

> WORK-BASED EDUCATION

> To assert the specificity of an Engineering School in a University, engineer-students go through an internship in a research laboratory, one day a week during a full semester. During the second semester of the third year, an internship in a company completes the education. It is undertaken in an industrial business where scientific computing methods are applied to solve problems.

A study tour abroad is organized each year to introduce students (1st and 2nd years) to different businesses. These last years, students visited Luxemburg, Geneva, Munich, London, Madrid, Frankfurt and their financial centers and high-tech industries.

> INTERNSHIPS

- First year: four weeks
- Second year: eight weeks
- Third year: from 24 to 28 weeks

RESEARCH-BASED EDUCATION

Some of the best engineer students can enroll for a master in addition to their current curriculum of their third year. Their engineer internship is therefore accredited as a Master's internship. This allows students to complete their education by doing research and eventually to start a PhD thesis (15 % of students, exclusively through partnerships with companies).

Director of Institut Galilée Frédéric Roupin • **Associate Director, responsible for Education** Olivier Lafitte

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