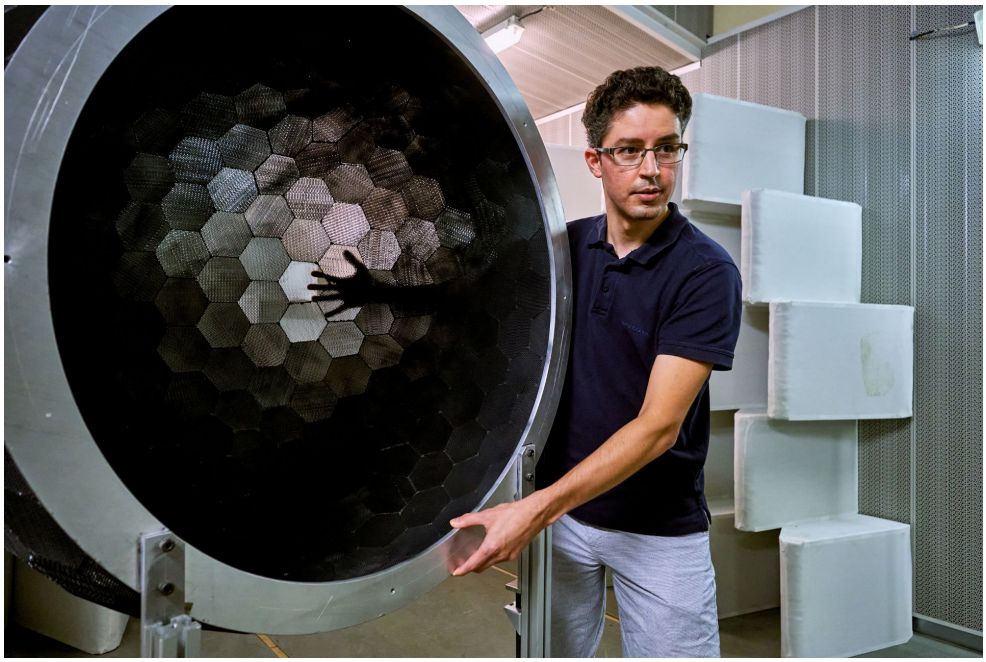
International Master Acoustics

Degree level: Master
Training time: 2 years
Language: English
Status: Student
Campus: Lyon-Ecully Campus



The **Master's in Acoustics** provides training in a wide range of acoustic fields, including **perception**, **medical ultrasound**, **aeroacoustics**, **air transport**, **vibroacoustics**, **land transport** and **construction**.

This programme aims to:

- Train experts to work in the fields of acoustics or vibrations within an international context.

- Prepare students to address and solve industrial acoustic challenges, with a particular focus on research and development issues.
- Provide an industrial awareness and a high level of scientific communication skills to students.

The International Master in Science of Acoustics is a 2 year program operated by Centrale Lyon in partnership with INSA Lyon and ENTPE.

The Master is supported by the Laboratory Cluster Centre Lyonnais d'Acoustique (CeLyA) : it thus offers many research opportunities and is closely connected to industry in a variety of fields.

Program

The Master's in Acoustics is structured over four semesters of progressive training. Delivered entirely in English, the programme includes theoretical courses, numerical and experimental work, projects conducted in partner laboratories, and more than one semester research training as intern in a laboratory or industry in France or abroad.

Regarding languages, English or French courses in the first year (M1) support the scientific teaching delivered in a foreign language. This enables students to follow second-year (M2) courses in either French or English.

- Face-to-face teaching: 500 hours in M1 and 240 hours in M2, totalling 740 hours of in-person instruction.
- Internships: 4 to 12 weeks in M1 and 22 to 26 weeks for the MSc thesis at the end of M2.

First year

Semestre 1

The first semester provides the scientific foundations essential for an acoustics specialist. This includes core knowledge in mechanics, continuum physics, and data processing, along with an introductory course in acoustics.

Core scientific modules:

- Sound Propagation and Acoustics
- Signal and Speech Processing
- Fundamentals of Mechanics
- Continuum Mechanics
- Acoustic Devices
- Research Project - Part 1

Cross-disciplinary modules:

- French or English
- Project Management and Communication

Semestre 2

The second semester introduces students to a broad understanding of acoustics.

Core scientific modules:

- Numerical Acoustics Modelling (Project)
- Vibrations
- Musical Acoustics
- Research Project - Part 2

Elective modules:

- Adaptive Filtering: Application to Active Noise Control
- Finite Elements
- Materials for Building and Construction

- 2nd Language (optional)

Cross-disciplinary modules:

French or English

Internships and Seminars

Internships: 4 to 12 weeks in laboratory.

Second year

The theoretical programme comprises seven teaching units, including a core course in advanced acoustics, five courses chosen from those listed below, and a general course from another Master programme (including this Master in Acoustics). The research placement must be in a research laboratory or a corporate R&D department, in France or abroad.
In parallel to the specialisations listed below, this Master programme offers an alternative 'bioacoustics track" run by Jean Monnet University. For more information, go to the page dedicated to this track.

Semestre 3

The third semester focuses on industrial applications and advanced training in specific areas of acoustics.

Core scientific modules:

General Acoustics : Acoustics sources and sound propagation

Elective modules:

- Specialized Acoustics: Aeroacoustics, Perception, Building Acoustics, Structural Radiation...
- Applications in Environment, Transport and Health
- Thematic Broadening Courses

Cross-disciplinary modules:

- French or English
- Cross-disciplinary Seminars

Internships and Seminars

Interships: 22 to 26 weeks for the MSc thesis at the end of M2

Semestre 4

The fourth semester is dedicated to practical application through a research internship in a laboratory or industry.

Internships and Seminars:

Research Internship in a Laboratory or Company (R&D)

Degree and Certification

This programme awards a national Master’s degree, accredited by the French State.

Career opportunities

The career opportunities offered by this master's degree in acoustics mainly concern :

- R&D departments of major industrial groups in the energy, transport, building and health sectors.

- Acoustics and vibration consulting firms and design offices, and acoustics manufacturers.
- Research, through a PhD in a research laboratory or in partnership with industry.

Focus

The Master's degree in acoustics is supported by three internationally renowned engineering schools: Centrale Lyon, INSA Lyon and ENTPE.

The program is supported by the Centre Lyonnais d'Acoustique and eight research laboratories in Lyon: the LMFA, the LTDS, the LVA (INSA), the LabTau (INSERM), the CREATIS (INSA), the LAMCOS (INSA Lyon), the CRNL (INSERM), the ENES (UJM) and UMRAE (Univ Gustave Eiffel).

Admission requirements and application

Prerequisites

- Master 1: Bachelor's degree in a scientific subject related to the Master's themes. English level B2.
- Master 2: Successful completion of M1 in a subject related to the Master's topics. English level B2.

Application

Applications are considered on the basis of a dossier.

Discover application procedures

Tuition fees

Knowing and anticipating your expenses is essential before making a serene commitment to training.

Discovering master's tuition fees Discover the average study budget at Centrale Lyon

Administrative contact

Education department - International Masters

Information and registration

scolarite.registration@listes.ec-lyon.fr

Useful links

- Discover the course syllabus
- Master of Acoustics website