CENTRALE LYON

Sensory Engineer

Degree level: Specialty engineering
Training time: 3 years
Language: French
Status: Student, professional training
Campus: Saint-Etienne Campus

Objectives

Imagine a world where products don't just work. They seduce, move, leave a lasting impression. That's where the Sensory Engineering engineer comes in: an expert capable of **designing, analyzing and optimizing users' sensory experiences.**
Our engineering training is aimed at those who want to place**human perception**, **comfort**and **emotion** at the heart of the design process.
Thanks to teaching that combines **design, engineering sciences and digital technologies**, students acquire unique expertise in:

- **Designing innovative forms** that combine comfort of use and performance in execution.
- Design and develop **products, systems or software** integrating the **sensory dimensions** (sight, hearing, touch, taste, smell, proprioceptive senses).
- **Develop** immersive **interfaces**in virtual or mixed reality and design **innovative mechatronic systems**.
- **Master manufacturing**: choice of materials, processes, and production of complex prototypes meeting sensory specifications.
- Implement the tools of **sensory analysis**, from **scientific measurement** to **subjective evaluation**.
- **Innovate**and **collaborate**with **multidisciplinary teams** (designers, marketers, neuroscientists, ergonomists).

The **pluridisciplinarity** of the training gives the keys to **innovate** in a l**wide range of**

fields by combining **creativity** and **engineering**.

Program

Teaching

- **Engineering sciences**: mathematics, physics, computer science, mechanics, electronics/automatics, statistics.
- **Human and social sciences**: languages, economics/management/law, management, personal project.
- **Sciences of perception**: cognitive functions, functioning of the 5 senses, tactile perception, acoustic perception, sensory analysis, ergonomics and movement science.
- **Innovation, design, manufacturing**: design, user-centered design, CAD, 2D&3D computer graphics, sensory marketing, mechatronics, manufacturing processes, 3D printing, materials, bioengineering.
- **Digital sciences**: programming, virtual and augmented reality, human-machine interactions, embedded systems, robotics, scanning/photogrammetry, data-science and artificial intelligence.

Virtual reality room

Elective courses and a personalized curriculum

Electives (elective courses) enable engineering students to deepen the concepts seen in the core curriculum or to discover disciplinary fields related to their specialty. In 5th year, in line with their career plans, student engineers can choose one of two in-depth courses: **Innovation, Design, Manufacturing**or **Digital Science**.

Also in 5th year, engineering students can choose to start their professional integration through a **professionalization contract**, complete their engineering training with a research master's degree, obtain a **double degree at one of our international partner universities** or spend **one year at one of our partner establishments**: Strate Design, EM Lyon, INSA, ENTPE, or Mines St-Etienne.

Professional integration

Internships

In order to enable students to acquire practical knowledge of the world of work, Centrale Lyon ENISE engineering training includes 3 internship periods:

- 18-week internship in 4th year
- 22- to 24-week internship in 5th year

Projects

An engineer will be required to solve the concrete and complex technical problems posed to him/her, through the management of projects integrating technical, organizational and financial dimensions. Several integrative projects punctuate the course:

- **The 5th semester project** aims to apply scientific and technical skills to a multidisciplinary problem within the student engineer's chosen profession (eg: Creation of a new visual code for color-blind people; design of a projective augmented reality prototype for the evaluation of culinary sensory perceptions);
- **The 8th semester project** aims at development/innovation within an entrepreneurial logic by associating two complementary trades (e.g. Civil Engineering + Sensory Engineering, etc.) in order to develop the skills of the student engineer.) in order to develop innovation skills in a multicultural environment;
- **The 9th semester project** is dedicated to the discovery of a research activity in line with Centrale Lyon ENISE's areas of expertise (eg, Sensory and objective characterization of wood for medical use, Integration of a thermal diffusion system on virtual reality controllers, Measurement of brain activity during the exploration of surfaces by touch).

International mobility

A stay abroad in the form of an internship or academic exchange enables you to consolidate your language skills and open up to other cultures. A minimum of one semester's mobility abroad is a prerequisite for graduation. It can take the form of an

Erasmus academic stay, an internship or a double degree in one of our 117 academic partners in 34 countries.

Languages

Language courses are designed to give you linguistic fluency in a professional environment. A TOEIC certification of 790 points in English is compulsory to obtain the diploma, for which intensive one-week preparation courses are planned over the last 3 years of training. A second language is included in the training program.

Gateways with École Centrale de Lyon

In 3rd year, engineering students recruited from post-baccalaureate programs have the option of joining École Centrale de Lyon and continuing in the general engineering curriculum (integration in 1st year of the engineering cycle). Selection is based on applications and an interview.
In 4th year, depending on their career plans, engineering students can choose from one of the 5th year specialties offered by École Centrale de Lyon.

Diploma and certification

This course delivers a national engineering diploma, controlled by the State and accredited by the Commission des Titres d'Ingénieur.

DIPLÔME D'INGÉNIEUR CONTRÔLÉ PAR L'ÉTAT

Cti Commission des titres d'ingénieur

Career opportunities

- Product manager engineer

- Sensory analysis engineer
- Innovation project manager
- Designer
- Virtual reality expert
- Design engineer
- Research and development engineer
- Production engineer
- Researcher

Sectors of activity: Bioengineering, Medical industry, Sports equipment, Textile, Food processing, Home automation, Robotics, IT/Virtual Reality, Transport, Product design, Cosmetics, Construction.

Focus

A strong industrial base :

Internships, professionalization contracts, apprenticeship training, professional interventions in training, industrial contracts... So many partnership projects with all the socio-economic players that testify to the strong links between Centrale Lyon ENISE and the business world.

Admission requirements and application

Requirements

- Bac + 2 or a Bac +3 (Cycle préparatoire intégré Centrale Lyon ENISE, Cycle préparatoire CapECL, CPGE, BUT 2nd or 3rd year of BUT, licence 3)

Application

- **Post CPGE** : concours CCINP, concours PT
- **Post BUT, License: application by dossier on the dedicated platform:**

Apply

Tuition fees

- **Under student status**: From the start of the 2026 academic year, a modulation of tuition fees for the entire engineering cycle is being introduced. Fees, now calculated according to reference tax income, will vary **between €1,613 and €4,113 per year**. A total exemption is maintained for CROUS scholarship students.
- **Under apprentice status**: Training is free for students on work-study contracts.

Access the simulator

Educational contact

Lavoué Guillaume

Enseignant-Chercheur

guillaume.lavoue@enise.ec-lyon.fr

Documents

- Syllabus - Sensory Engineering Engineer (752,60 Ko)
- Sensory Engineering brochure (889,93 Ko)