

PROGRAM

1ST SEMESTER

- 1/ Computer Aided Design (28 hours)
- 2/ Machine learning (28 hours)
- 3/ System engineering, innovation and sustainable design (26 hours)
- 4/ Basic robotics (28 hours)
- 5/ Programming for robotics (28 hours)
- 6/ Computer vision (28 hours)
- 7/ Real time systems (28 hours)
- 8/ How to design your personal and professional development plan (20 hours)
- 9/ Marketing (20 hours)
- 10/ Project (30 hours)
- 11/ French basics (28 hours)
- 12/ French (28 hours)
- 13/ Elective language course (15 hours)

2ND SEMESTER

- 1/ Dynamics (24 hours)
- 2/ Electrical actuators in robotics and machine-tools (28 hours)
- 3/ Industrial Process/Additive Manufacturing (28 hours)
- 4/ Advanced robotics (28 hours)
- 5/ Reinforcement learning for robotics (28 hours)
- 6/ Modelling of Mechatronics Systems (28 hours)
- 7/ Project (50 hours)
- 8/ French for business (28 hours)
- 9/ Marketing and management: cultural and societal aspects (16 hours)
- 10/ Fundamentals of management (36 hours)
- 11/ Economy: business game (24 hours)
- 12/ Elective courses (20 hours)
- 13/ Elective language course (20 hours)

ASSISTANT-ENGINEERED INTERNSHIP (MINIMUM 15 WEEKS)

3RD SEMESTER

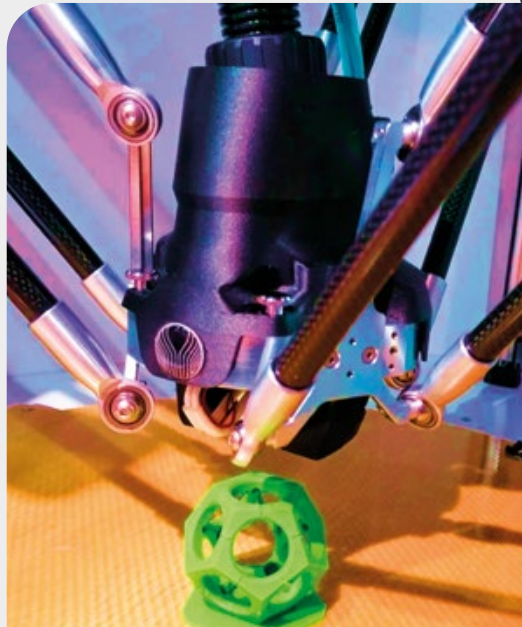
- 1/ Innovative materials (28 hours)
- 2/ Softwares for Dynamics and Materials (28 hours)
- 3/ Sustainable Manufacturing and Innovation (30 hours)
- 4/ Sensor integration (28 hours)
- 5/ Application of Intelligent Robotics (28 hours)
- 6/ Special Topics on perception and robotics (28 hours)
- 7/ Project (90 hours)
- 8/ English (32 hours)
- 9/ Second foreign language (26 hours)
- 10/ Job marketing: class told in English (14 hours)
- 11/ Responsibility of the engineer (16 hours)
- 12/ Management (16 hours)
- 13/ Elective courses (40 hours)
- 14/ Elective language courses (20 hours)

4TH SEMESTER

- 1/ Internship (minimum 22 weeks)
- 2/ Preparation for certification in French language

ADMISSION CRITERIA

- Applicants should hold a valid Bachelor's degree.
- The selection process will be based on the examination of the application file (CV, transcript of the BEng, English language certification). The candidate may be invited to an interview.



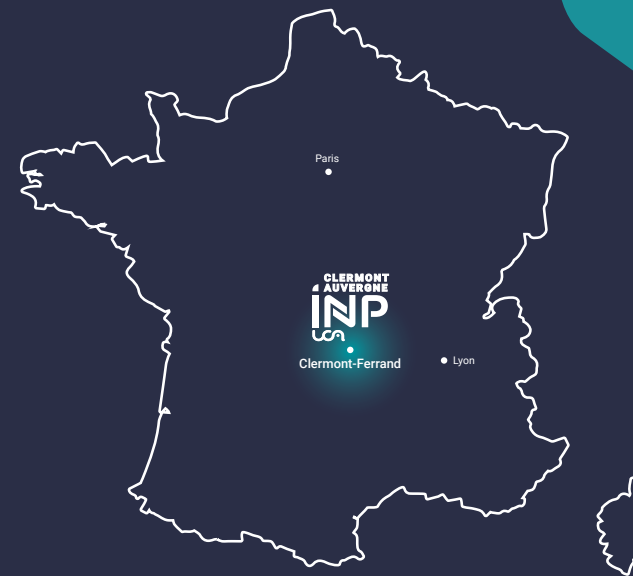
> 4 scientific semester projects and 2 internships:

- 16-week internship between the 2nd and 3rd semesters
- Final 22-week internship

> In collaboration with industrial partners and research laboratories

> Scholarship opportunities are available for excellent candidates.

> PhD scholarships will also be offered after the Master's degree for top performers.



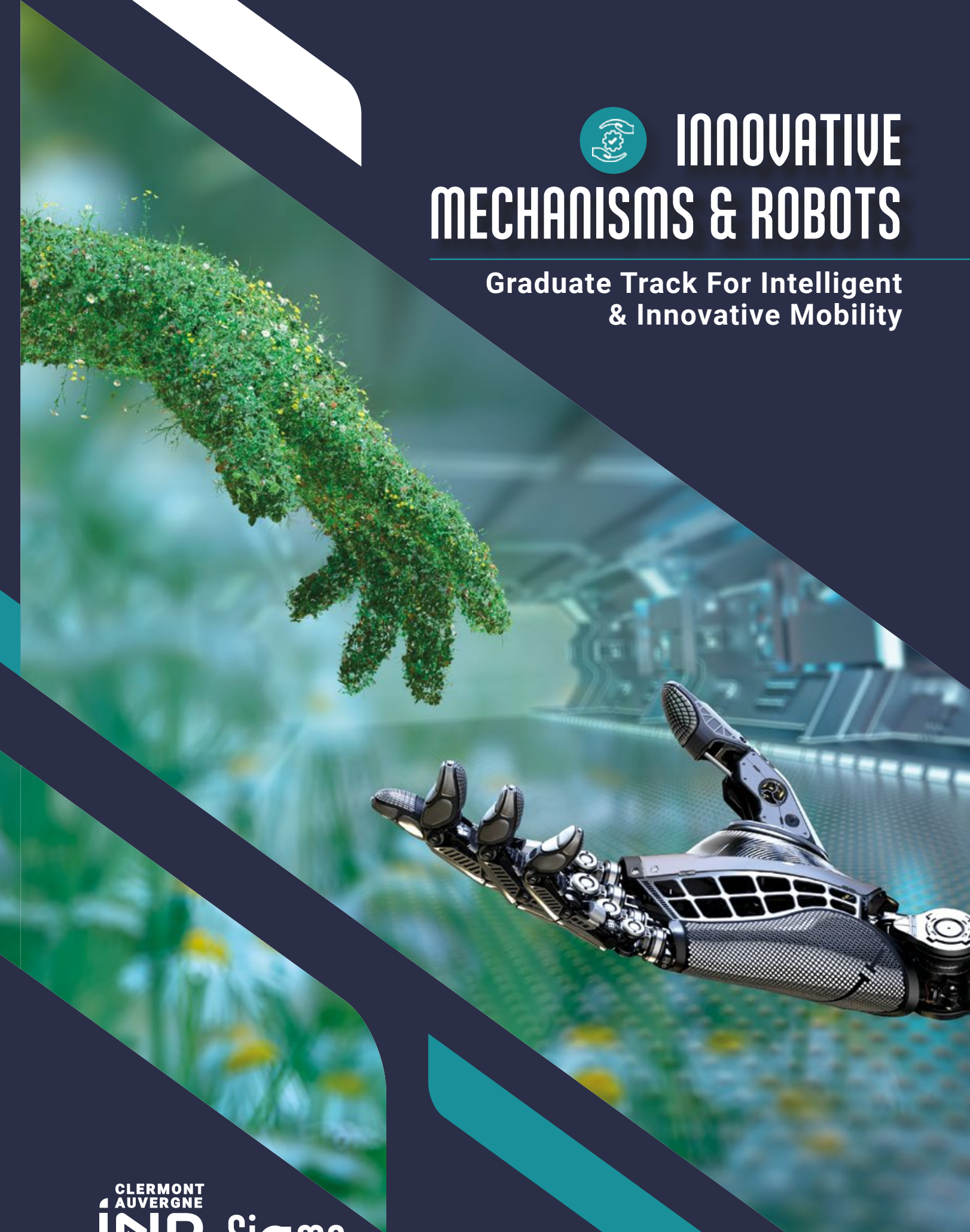
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www.sigma-clermont.fr



INNOVATIVE MECHANISMS & ROBOTS

Graduate Track For Intelligent & Innovative Mobility





Institute of Technology
3 graduate schools of Engineering in Clermont-Ferrand
Clermont Auvergne University

Computer science • Biological Engineering • Mechanical Engineering • Civil Engineering
• Electrical Engineering • Mathematical Engineering & Data Science • Engineering Physics
• Production Systems Engineering • Chemistry & Chemical Engineering

3 engineering graduate schools

Clermont Auvergne INP - ISIMA
Clermont Auvergne INP - SIGMA Clermont
Clermont Auvergne INP - Polytech Clermont

INP Member of the INP Group
+35 public engineering schools
in France

4 engineering preparatory classes
(undergraduate level)

La Prépa des INP (Groupe INP)
CPI (Fédération Gay-Lussac)
Prép Isima
PeiP (réseau Polytech)

1 professional training
department

2 500 students

350 academic & administrative
staff

189 international cooperation
agreements

3 Main research centers
affiliated to the French
National Research Centre (CNRS)



EDUCATION



RESEARCH



PROMOTION OF RESEARCH



École affiliée
IMT



SIGMA Clermont is a public engineering school proposing high-level graduate courses in the fields of Advanced Mechanics, Industrial Engineering, Robotics, Chemistry, Process Engineering, Materials, Structures and Systems. Independent and reactive, the school puts its connections with industry and research and development at the heart of its training programs. SIGMA Clermont was created by the merger of ENSCCF and IFMA, and has been part of Clermont Auvergne INP since 2020. The school is affiliated with Institut Mines Telecom.

SIGMA Clermont has the 2-star "Bienvenue en France" label. The Master's degree is accredited by the French Ministry of Higher Education and Research and by the Commission des Titres d'Ingénieur, one of the foremost higher education quality assurance organisations in Europe.

MASTER'S DEGREE IN INNOVATIVE MECHANISMS AND ROBOTS

The program is designed to promote a high-quality educational offer in the areas of advanced design and control of complex systems with a particular focus on industrial machines and robots.



In short:

- > **Diplôme d'ingénieur Grande Ecole**
- > **Duration: 2 years**
- > **Starting in: September**
- > **Training period:**
3 semesters at SIGMA Clermont
+ 1 semester of internship
- > **Language: English**
+ additional French language courses
- > **ECTS: 30/semester**

After completion the students will have mastered the different areas of complex mechanisms such as:

- Mechanical modelling & design
- Material modelling
- Control engineering, sensor integration, artificial intelligence
- Robotics applications

The course covers all the main themes necessary to be able to deal with complex mechanisms and robots as a whole, rather than just concentrating on one particular area.

Hosting graduate school:



Contact: Youcef MEZOUAR - youcef.mezouar@sigma-clermont.fr

