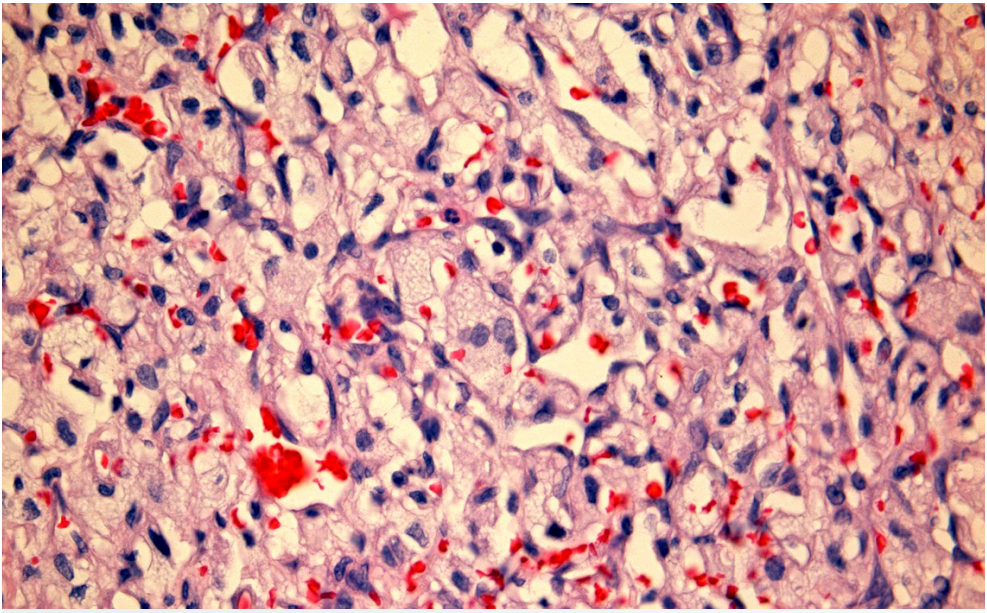


Master of Science and Technology in Complex Systems Engineering

BIOMEDICAL ENGINEERING

FULLY TAUGHT IN ENGLISH
EU/FRANCE ACCREDITED PROGRAMME

Centrale Méditerranée

A*Midex Initiative d'excellence Aix-Marseille

FRANCE 2030

MASTER OF SCIENCE AND TECHNOLOGY

IN "COMPLEX SYSTEMS ENGINEERING"

Environmental, biological or human systems lying at the core of the major current challenges, are "complex systems" whose **overall behaviour** is controlled by the interaction of all its multiple elements.

Understanding, modeling and handling such systems requires specific skills that you will acquire through the **exceptional academic and clinical training environment** of this master's program. It will provide you with a rich **interdisciplinary educational experience in biomedical engineering** and prepare you for a professional career in optimal conditions.

Beyond the wide academic knowledge gathered, you will also **enrich yourself with a broad range of experiences**:

- Labs/companies visits, seminars...
- Soft-skills and management courses
- Up to 10 months of work & research placements (projects, clinical/research/company internships...)
- Multicultural international experience in southern France & French language proficiency

You will be highly valued by companies looking for bicultural engineers with strong technical skills and work experience

READY TO BECOME A BICULTURAL ENGINEER?

The master's programme is designed to train future talented experts in the main biomedical engineering specialities: **biomechanics, medical imaging, biomedical instrumentation, orthopaedics, clinical engineering**, etc.

You will become a bicultural engineer with strong scientific and technical skills covering the major aspects of biomedical engineering, coupled with solid experience in management, innovation & research.

This master will **open up numerous employment opportunities**, particularly in R&D, consultant/audit engineering, academic project engineering, management...

You can also pursue your studies with a PhD in a field related to the M2, in academia or jointly with a company.

BIOMEDICAL ENGINEERING

PROGRAMME

YEAR 1

1ST SEMESTER
PROPAEDEUTICS

- Transport phenomena
- Computer sciences and numerical methods
- Introduction to clinical medicine
- Introduction to material science and structural design
- Introduction to biomedical signal and image processing
- Engineering & biological systems
- Wave propagation
- Management
- Language class
- Seminars, conferences
- Project based training
- Winter internship in lab (8 weeks)

2ND SEMESTER
IN-DEPTH SCIENTIFIC LEARNING

- Life building bricks
- Imaging and wave therapy
- Biotechnologies and chemical therapies
- Clinical visits, practicals, external training, seminars...
- Language class
- Project based training
- Summer internship in company (8 weeks)

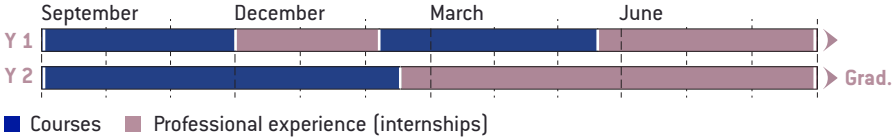
YEAR 2

1ST SEMESTER
KNOW-HOW

- Advanced imaging
- Biomechanics
- Computer sciences and data sciences
- Integrated design of biomedical systems
- Advanced image processing
- Numerical modelling for biomedical engineering
- Advanced material sciences and structural design
- Sensors & biomedical monitoring
- Industrial engineering
- IoT for medecine
- Language class
- Elective courses shared with international academic & research partners
- Lab work
- Seminars
- Project based training

2ND SEMESTER
MASTER'S THESIS

Paid internship in lab or company (4-6 months)



Up to 8 months of lab, clinical or company internships

HOW TO JOIN US?

FOR WHOM?

The Master's programme is designed for undergraduate students with a strong background in sciences: licence/bachelor's degree in physics, mechanics, applied mathematics or engineering sciences.

The master's course is fully taught in English (B2 level (independent user) is required).

Direct admission to 2nd year (M2) is possible if you have completed and validated the 1st year of a Master Degree (M1, 60 ECTS) in the fields listed above or if you have significant professional experience.

At the end of your course, you will get an accredited Master's diploma and a Centrale Méditerranée certification for the compulsory management and softskills training programme (140 ECTS in total).

ADMISSION PROCESS

The admission process is organized in three stages:

- Please contact us by email at msct-cse@centrale-marseille.fr
  We will send you all the relevant information (application file, schedules, tuition fees).
- Your application will be examined by the teaching team, who will inform you of its decision.
- If your application is eligible, an interview will be organized.

The Master's courses will start on September.

ANNUAL TUITION FEES

Please contact the Admission Office or see the Master's website

Students enrolled in or coming from either a member institution of the RMEI either a partner institution of Centrale Méditerranée with which an agreement has been signed: please contact us regarding tuition fees.

Fall/winter: opening of applications

- 1st contact & application
- Admin. eligibility check
- Interview
- Notification of admission
- **Application deadline** (Please refer to the website or to the application form)

Sept.: Starting of the courses

CENTRALE MÉDITERRANÉE

WE HAVE A WORLD TO TRANSFORM

THE "CENTRALE" BRAND

Centrale Méditerranée is one of the most prestigious public engineering schools in France which belongs to the Ecoles Centrale group, an internationally-reputed higher education group with a powerful **global network of 35,000 alumni.**

Employers recognize the strong scientific & technical skills of Ecoles Centrale's graduates and their capacity to **design and lead complex and innovative projects.**

RESEARCH ENVIRONMENT

Centrale Méditerranée's faculty members belong to **8 laboratories in chemistry, physics, photonics, mechanics, chemical engineering, and computer sciences.** These top-ranked laboratories are linked to the national scientific research centre (CNRS) and are renowned for their high-quality scientific research in France and abroad.

STUDENT LIFE

Student clubs are part of the student experience: International Students, Engineers without Borders, Sports & Sailing, Arts, Fablab Marseille, Ginfo (IT) and E-Gab (robotics)... among others. During your student life you will develop a spirit of mutual success and human respect, the determination to initiate solutions and solve problems, and a sense of societal responsibility.

One of the leading Engineering schools in the heart of the Mediterranean area...

STUDY IN MARSEILLE AND DISCOVER PROVENCE REGION!

- 300 sunny days per year
- Second largest city in France (870,000 inhabitants), close to the Parc National des Calanques
- Experience Region Sud, with cities such as Arles, Aix-en-Provence, Avignon and Nice
- Marseille-Marignane Airport, 3rd-largest French airport serving 26 countries
- High-speed train destinations from Marseille: Paris (3hrs), Lyon (1hr30), Barcelona (5hrs), Madrid, Frankfurt and Brussels among others.

Check out/visit the Centrale Méditerranée website for the latest information and details about the Master's programmes.

CONTACTS

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