RÉPUBLIQUE
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Masters of science

Masters of Science

A wide range of training courses
offered by 2 public engineering schools

TOULOUSE INP

INSA INSTITUT NATIONAL DES SCIENCES APPLIQUÉES TOULOUSE

msc-inp-insa-toulouse.fr

Toulouse INP and INSA Toulouse offer a wide range of Science and Technology programs within the University of Toulouse.

Toulouse INP and INSA Toulouse are public engineering schools.

The Masters of Science are two-year full-time programs, usually aimed at undergraduate students who already have a bachelor's degree. Lectures are focused on specific scientific and technical fields.

Fully accredited by the French Ministry of Higher Education, our Masters of Science are internationally recognized and may lead to PhD programs or job opportunities in industrial companies.

Our programs are taught in English
N.B.: Some programs may also include some content in French

MSc
Electronics Systems for Embedded and Communicating Applications (ESECA)

Presentation

This joint master's program offered by Toulouse INP-ENSEEIHT and INSA Toulouse is a gateway to doctoral research and job opportunities and job opportunities in electronics for embedded systems. It is aimed at students with a bachelor's degree in electronics, electrical engineering, telecommunications, computer science, robotics, physics or equivalent.

Aims of the program

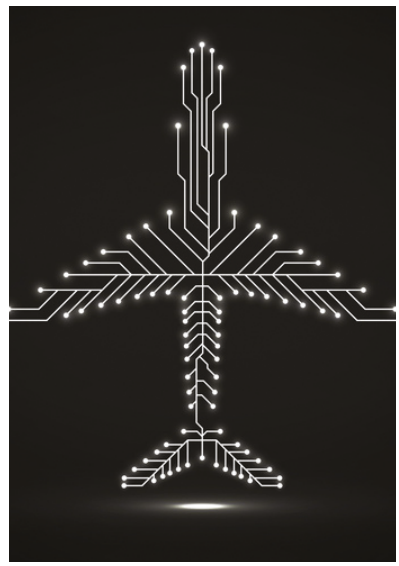
The ESECA program aims to:

- Enroll top-level international students in the field of electronics.
- Provide state-of-the-art teaching in electronics for embedded systems, working in tandem with the aeronautics industry and top-flight research institutions.
- Graduate students that may take part in research activities as PhD or R&D engineers and will have the opportunity to build an international carreer.

Research institutions & industrial partners

The program's lecturers work in the so-called « Aerospace Valley », which regroups renowned research laboratories (LAAS, Laplace, IRIT) and worldwide industry leaders in aeronautics, space and embedded systems (Airbus, Thales, Continental, Astrium, Rockwell Collins, etc.).

The students can benefit from this partner network in the context of their project or internship search.



Job opportunities

Over 40% of students go on to pursue PhD studies or R&D for the manufacturing industry in aeronautics, automotive, semiconductors, communications, etc.

MSc Satellite Communication Systems : from engineering to end-to-end systems (SATCOM Systems)

Presentation

Satellite communication systems have been taught in Toulouse for over 40 years.
Today, it takes the form of a two-year MSc run by INP-ENSEEIHT.
SATCOM Systems benefits from a unique research and professional environment, since Toulouse is the French capital of Space. The program also takes advantage of the strong ties that the faculty members of INP-ENSEEIHT have built with the aerospace and defense industries.

Aims of the program

The SATCOM Systems program aims to train students into becoming autonomous specialists in the field of satellite telecommunications. The level of expertise acquired in electronics, digital communications, networks and systems will allow them to readily access positions of responsibility in this field and more generally in the field of telecommunications.

Research institutions & industrial partners

The master's program is supported by key players in the field of satellite communications (Airbus Defense and Space, Thales Alenia Space, CNES, SES, Eutelsat, Inmarsat, and more). The teaching staff is composed of experts of the satellite industry and faculty members working for major French research laboratories.

Job opportunities

While the main sector of activity is satellite telecommunications, graduates can also find jobs in the broad field of telecommunications.

Graduates are mainly hired by major European players in the field of satellite telecommunications (system and service providers): manufacturers (Thales Alenia Space, Airbus Defence and Space, etc.), agencies (CNES, DLR, ESA, etc.), and operators (Eutelsat, SES, Inmarsat). Graduates are also recruited by large companies such as Thales and Orange, and by SMEs such as CLS, Silicom, and Sigfox. Graduates can work as R&D, systems or project engineers. They may also pursue PhD studies.

MSc Electrical Energy Systems (EES)

Presentation

This master's program focuses on areas of Electrical Energy Systems dedicated to several industrial applications.

The lectures and projects are structured into three separate specializations: Advanced Power Electronics, Electrodynamics and Mechatronics, and New Technologies of Energy.

Aims of the program

This program helps students acquire skills related to the production, storage, transmission, conversion (including electromechanical conversion) and use of electrical energy. The teaching team, which includes experts working at the LAPLACE, LAAS and LGC research laboratories, instructs students in the design of power systems (dimensioning and control): static and electromechanical converters, mixed energy configurations including renewable energies, transportation and autonomous networks (smartgrids). Our approach is based on analytical system modeling and numerical optimization and simulation, considering couplings and interactions between system parts. Aspects of efficiency and sustainability are fully taken into account.

The courses are supported by numerous group projects designed to help students apply theoretical knowledge, same of them being supported by industrial partners.

Language of instruction: Lectures in French, documents in English.

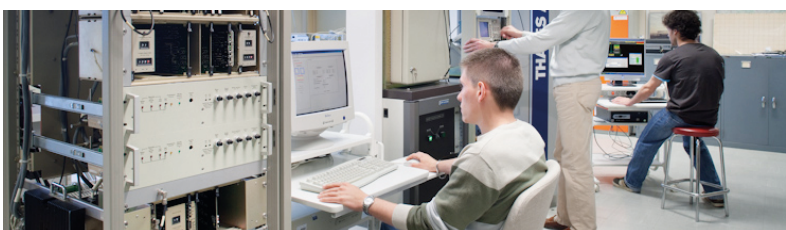
Research institutions & industrial partners

All teachers also work as researchers at laboratories affiliated to the French National Center for Scientific Research (CNRS): Plasma and Energy Conversion Laboratory (LAPLACE), Chemical Engineering Laboratory (LGC), and Laboratory for Analysis and Architecture of Systems (LAAS).

A significant percentage of the lectures and industrial projects include contributions of industrial R&D partners such as Airbus, Thales Alenia Space, SAFRAN, Actia, Schaeffler AG, EDF, GDF, SUEZ, CEA, ADEME, Liebherr Aerospace, Airbus Defense and Space, and SNCF.

Job opportunities

- Academic research (30% of graduate students pursue PhD studies).
- Industrial Research & Development in:
  - Production and Transfer of Energy Companies
  - Power Equipment manufacturers (power generators, storage elements, power converters, propulsion actuators)
  - Transportation industries (aeronautics, space, maritime, automotive, railways).



MSc Industrial and Safety Engineering (ISE)

Presentation

Turning innovations into innovative products entails controlling industrial design processes to bring those products to market within a reasonable time and price, while providing assurance of their quality and safety. Quality and safety requirements are increasingly important in the manufacturing process. All these processes involve various human, managerial, technical and financial skills, thus being influenced by numerous external constraints (regulatory, normative, legal, societal and technological).

Aims of the program

This program aims to train specialists while providing answers to new industrial and societal expectations in an international context. Upon graduation, the student will be able to manage the quality and risks of technological systems (products and facilities) relating to their specification, design, implementation, manufacturing and operation, and to ensure quality and risk control in a legal, economic and social environment.

Research institutions & industrial partners

Academic lecturers are members of the French National Center for Scientific Research (CNRS). Industrial lecturers are senior practitioners from various fields: energy (oil and gas, nuclear), aerospace, transportation, chemistry, etc.

The Institute for an Industrial Safety Culture (ICSI) brings together a large variety of companies, providing a prime professional environment and support for students throughout their training: lectures, case studies and internships.

Job opportunities

Placement opportunities are varied as the training includes design, production and operation, as well as management. They include, but are not limited to:

- Research laboratories of universities
- Research and development departments of large industrial companies
- Production facilities (production of goods, energy, etc.)
- Engineering companies and consultancy

Language of instruction:
100% Eng. in M1 and 20% Eng. in M2
(lectures in French, documents in English).

MSc Fluids Engineering for Industrial Processes

Presentation

The lectures of this program concern the physics and modeling of transport phenomena in multiphase flows (bubbles, drops, granular media, emulsions and foams). Some of tits applications include fluid flows in petroleum engineering, chemical engineering, energy transformation, and more.

Aims of the program

This program will provide you with state-of-the-art expertise in Fluid Mechanics and its applications to raw materials and energy transformation processes. Multiphase flows are of major importance for modeling the behavior of industrial processes. Advanced courses on turbulence, coupling chemical reactions and flows, heat and mass transfer are complemented by exercises and practical training. Students will learn to use Computational Fluid Dynamics tools (commercial codes as well as research and industrial software).

Research institutions & industrial partners

All teachers are members of major research institutions affiliated to the French National Center for Scientific Research (CNRS): IMFT (Institute of Fluid Mechanics) / TBI (Toulouse Biotechnology Institute – Bio & Chemical Engineering) / LGC (Chemical Engineering Laboratory) Students benefit from internship opportunities at industrial partners (production, research, etc.):

- Petroleum and gas engineering: TOTAL – SAIPEM – IFP-EN - GDF - BP Chemical - TECHNIP
- Transformation of soil materials: ARCELOR/MITTAL, Saint-Gobain, Air Liquide
- Nuclear engineering and energy: AREVA – EDF – CEA - IRSN
- Water management and production: SUEZ Environnement – VEOLIA - DEGREMONT

Job opportunities

Around 30% of students go on to pursue PhD studies. R&D positions major companies in the petroleum, nuclear or chemical engineering fields. Jobs in various industries, including the processing of raw materials and energy transformation, water management and waste treatment, and food manufacturing.

MSc Water Engineering and Water Management (WEWM)

Presentation

The WEWM master provides students with shared theoretical and practically-oriented knowledge in the field of water engineering and water management.

Students enrolled in the program will learn how to design water engineering projects and to bring them to fruition while respecting the principles of sustainability (integration of energy efficiency and mass/energy valorization).

Aims of the program

The master focuses on chemical engineering and hydrology applied to unit operations of water treatment and water sciences (aquatic systems and their preservation).
The lectures address biological and chemical reactors for pollution removal, unit operations of separation for high-quality water production (membrane separation, adsorption», etc.), and hydrology and ecology for the management of aquatic systems. In addition, students will follow courses on international regulations, environmental management and project management to be ready to tackle water-related societal, governmental and industrial challenges.
Throughout two years of training, the student will interact closely with industrial partners and research laboratories.

Job opportunities

Graduates will gain access to positions in the environmental sector (water/air/waste treatment eco-industries) or in various other fields (chemistry, petrochemistry, food, pharmacy and cosmetics, specialized materials) that take into account environmental constraints (eco-processes).

Research institutions & industrial partners

Industrial applications of the program include desalination, drinking water production, wastewater treatment, water reuse, industrial water treatment, and the eco-conception of processes.

INSA is member of the national cluster of Excellence WATER and the regional cluster Water, Sensor & Membranes.
The laboratories in affiliation with this master are ranked A+, a plus for students aiming for a career in research.

MSc Green Chemistry and Processes for Biomass (Green CAP)

Presentation

Today, the chemical industry must adapt to the increasing scarcity of resources, new regulations, and social, ecological and political pressure. In this context, the use of renewable resources like feedstock or microbial biomass constitutes an interesting alternative to manufacture functional bioproducts and contribute to the energetic transtition, thus representing significant levers for innovation. By combining the disciplines of green chemistry, catalysis, bioprocesses and formulation, the Green CAP MSc aims to provide the student with the essential tools for developing clean and safe processes in the emerging fields of agribusiness.

Aims of the program

- To train engineers in the implementation of clean technologies in a context of sustainable development, providing solutions in the fields of green chemistry and bioprocesses.
- To control the transformation of renewable resources by catalytic or biotechnological means.
- To develop functional, safe and innovative bioproducts, following an eco-design approach.

Job opportunities

The GreenCAP Master is particularly suited to students wishing to specialize in the valorization of biomass for industrial applications using clean processes.
Job placements and prospects are mainly in the fields of research and development, production, engineering, consultancy, and environmental assessment.
Employment sectors include energy production chains, ecotechnologies, agroindustry and the environment, cosmetics and health, bioproducts of specialties, and fine chemistry.

Research institutions & industrial partners

The educational staff in charge of the master are research faculty members, working in internationally recognized laboratories in the fields of green chemistry, catalysis, green processes and bioprocesses:

- LCA (Laboratory of Agro-Industrial Chemistry), a joint research center INRA1010, supported by the transfer center CRITT-CATAR Agroresources
- LGC (Chemical Engineering Laboratory), a joint research center INPT-UPS and INSIS, supported by the transfer center CRITT *Génie des Procédés et de l'Environnement*.
- LCC (Laboratory of Coordination Chemistry), a CNRS research unit.

The three laboratories have close relationships with the industry, as shown by the publication of numerous patents, awards received, and affiliation with institutions of excellence (Institut Carnot 3BCAR, Laboratory of Sustainable Energy).

Students can benefit from this partnership network in the framework of their project or the search of an internship.

MSc Industrial BioTechnology for a Bio-Based Economy (BioTechEco)

Presentation

The international BioTechEco Master in Industrial Biotechnology and Processes for a Bio-Based Economy is a newly conceived master's degree offering a cross-disciplinary educational program that includes life sciences, chemical and bioprocess engineering, bioethics, sustainability, economics, and environmental regulations.

BioTechEco is a two-year, full-time master's program entirely taught in English. The program is specifically designed to shape international and French university students into bright, well-prepared professionals specialized in an emerging field. Students receive high-quality teaching delivered by lecturers and researchers from universities ranked among the 300 best institutions in the world (NTU and ARWU rankings, 2020). The curriculum comprises a full semester undertaken abroad in select partner universities in Europe, Asia and the USA, and a 6-month internship at a research laboratory of the university consortium or an industrial company.

BioTechEco master's program is included in EUR BIOECO, supported by the French government and managed by the French National Research Agency (ANR) under the Investments for the Future Program (PIA) ANR-18-EURE-0021.

Aims of the program

BioTecEco aims to provide its students with cross-disciplinary skills and expertise. A coupled training delivered by both university faculty and research units in Biological and Chemical Sciences and Economics provides new and unique expertise to students, rendering them attractive to the emerging bioeconomy market and allowing them to develop new industrial segments.

The added value and originality of BioTechEco stem from the integration of the master's program in a Graduate School of Research in biotechnology for building a bio-based economy.

The close ties of the degree with doctoral programs and international scientific competitions ensures its relevance to research and education centers in Toulouse with innovative pedagogical practices.

Research institutions & industrial partners

Teaching delivered by lecturers and researchers from universities ranked among the 300 best institutions in the world (NTU and ARWU rankings).

Job opportunities

Bright international careers in the emerging field of a sustainable bio-based economy, a growing sector offering new jobs in public or private companies, including green chemistry, health, bioenergy, water and waste treatment, biomaterials, cosmetics, among many others.

Masters of Science
Fact sheet

Duration: 2 years | ECTS: 120

FURTHER STUDIES

Advanced Masters / MBA / PhD

CAREER PROSPECTS

Executive positions within national or international companies

Professional networks: Toulouse INP and INSA Toulouse are public engineering schools and members of Campus France.

Fees: €9,080/year

Fee reduction:

Fees reduced to €5,393/year for academic partners, European students, students from some developing countries, and selected students on a merit basis.

ⓘ *National registration fees may change each year.*

Students can apply to different scholarship programs (governmental scholarships, European student mobility programs, French Eiffel and scholarship programs of French embassies, and training support programs from private foundations and companies).

Required documents:

- Photocopy of ID card or passport,
- CV in English (maximum 2 pages)
- Cover letter in English
- Proof of English level (if your native language is not English):
  - TOEIC (750) or TOEFL (80), IELTS (6.5)
  - If you do not hold one of these certificates, an interview will take place
- Certified copies of academic diplomas/degrees and certified academic transcripts

Optional documents:

Letters of recommendation (please provide the contact of three of your recent teachers, including email and phone number).

How to apply?

Direct application on the website of Masters of Science with all the required documents.

BIENVENUE EN FRANCE

INSA INSTITUT NATIONAL DES SCIENCES APPLIQUÉES TOULOUSE

TOULOUSE INP

Our programs are taught in English
N.B.: Some programs may also include some content in French

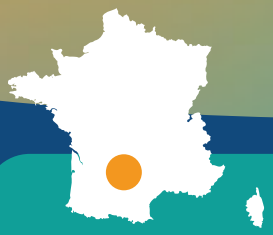
IN A NUTSHELL

- Our Masters of Science are national degrees fully accredited by the French Ministry of Higher Education
- Further studies: PhD programs (in three years).
- All MSc degree holders can take a step forward in the academic track to pursue a PhD degree.
- Prerequisite: bachelor's degree.
- Holders of a master's degree may access the second year directly (subject to conditions).
- Toulouse INP and INSA Toulouse welcome many international students each year and are happy to help them through practical and administrative formalities.

TOUL BOX

This pack has got you covered from A to Z! You can opt for the «*essentiel*» pack with most options (except the guided tour) or the «*cité internationale*».

August	September – July: Semester 1	September – July: Semester 2	September – July: Semester 3	September – July: Semester 4
1 month of scientific French Summer School *(optional)*	Courses, lectures, projects		Lectures, projects	6-month internship >€600/month minimum stipend
	Direct admission for holders of a BSc, BTech or equivalent		Direct admission for holders of a master's degree (MTech MSc) or a BTech / BSc + 3 years of professional experience in the field	



Welcome to France

TOUL BOX

Toul'Box is the #1 tool for students, teachers, PhD students and researchers that facilitates their installation in Toulouse and its region!

Université de Toulouse

CONTACT US

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SCAN ME!

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