ESECA
Master of Science and Technology

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FACTS
✓ 4th French city (~ 1 million inhabitants)
✓ 2000 years of history
✓ At the feet of the Pyrenées
✓ Capital of the French gastronomy
✓ Home of the north hemisphere most awarded rugby team
✓ Home of the French and European aeronautics industry
TOULOUSE: HOME OF THE EUROPEAN AERONAUTICS

- Home of the **AIRBUS** company
- Main **CNES** (National Center for Space Study) facility – part of the **European Space Agency**
- Home of **meteofrance** the French meteorology agency
- A complete network of companies (Thales, Safran, Honeywell, Intespace,...) and research labs (CESBIO, IRAP,...)
TOULOUSE is an attractive city for students

- Awarded as French preferred city by students
- 100,000 students: 2nd largest student pop. after Paris
- 14,000 international students
- Most important Engineering schools concentration

TOULOUSE is a major position in new technology R&D

- with leading companies: Continental, Freescale,…
- with innovating start-up: SIGFOX
- with major government funded labs: LAAS-CNRS, LAPLACE, IRIT,…
INPT and INSA

INPT – National Polytechnic Institute of Toulouse
The “7 campus university”

Agronomy (2 sites), Chemical engineering,
Veterinary, Meteorology,
Mechanical engineering
and
Electrical Engineering (ENSEEIHT)

INSA – National Applied Sciences Institute
An Engineering school with a national and
international network
5 sites in France + 1 in Morocco
Objectives of the master ESECA

✓ To enroll **top-level worldwide students** in the field of electronics
✓ To provide **top-level and most up-to-date teaching**:
  ✓ In electronics for **embedded systems**
  ✓ In relation to the **aeronautics** industry
  ✓ In tight relation with **research** activities
✓ To **graduate** students that will:
  ✓ take part in the research labs as **PhD** or **R&D engineers**
  ✓ Build an **International career**
MASTER structure

Integration semester (310 h)
Basics of Electronics, Electromagnetism and Signal

Core semester (355 h)
Advanced Electronics, RF electronics and Signal
Basics of Embedded Systems

2 month intermediary internship

Specialization semester (325 h)
Advanced of Embedded Systems
Research project in one of the 3 specialties (100 h)

6 month final internship
INTEGRATION SEMESTER:
- Extra-scholar support (paperwork, housing, bank,...)
- Intensive French lectures
- Dedicated lectures, tutorials and practicals (small groups) in mathematics, electronics, electromagnetism and signal processing.
- Coding C, µ-controller, DSP

CORE SEMESTER
Lectures, Tutorials and practicals
- advanced level (intensive): digital electronics (VHDL, FPGAs), RF electronics, signal and image processing
- fundamentals: mechatronics, telecoms
SPECIALIZATION SEMESTER
• Mobile autonomous systems
• Power Management
• Radar & remote sensing
• Telecoms

Intensive laboratory sessions
• Clean room facilities
• Industrial lecturers

RESEARCH PROJECT
100h in one of the many research institutions of Toulouse (LAAS-CNRS, LAPLACE, IRIT,...)

FINAL INTERNSHIP
6 month in a laboratory or a company
Support

Educational teams
- Department of electronics of N7
- Departement of electrical engineering of INSA

Associated laboratories
- LAAS-CNRS (Microelectronics, Sensors, IoT, Robotics)
- LAPLACE (Energy, Plasmas, Microwave)
- IRIT (Image/Signal Processing, Telecoms)

Industrial speakers and tutors
- Airbus
- Thales
- Freescale
- etc....
Majority of PhD student (44%) Amongst them mostly private companies (Thales, Technicolor, Schneider,...)

25% work as R&D engineers - mostly small companies
Double diplomas

- USFQ (Quito, Ecuador)
- DTU (New Dehli, India)
- NTU (Taipei, Taiwan)
- Suptech (Tunis, Tunisia)

M1 in home University
M2 in Toulouse

→ Direct recruitment at the M2 level
What they say!

**Rafael, Venezuela:** The master ESECA provides continuity with knowledge and expertise in telecommunications already acquired in my country.

**Lavinia, Romania:** I have chosen France because of my precedent Erasmus experience in Toulouse. Moreover, this program of Master is very well focused on my preparation as well as on the knowledge I wanted to gain during my Master studies.

**Chetan, India:** I am very satisfied with what I have learnt during the Masters. There is a strong cohesion between the subjects taught at the school and the current demands in the industry. A fine balance was struck between the theoretical courses and the hands-on practicals. The presence of researchers and labs is also very beneficial and necessary. It helped me develop an approach towards analytically responding to a problem.

**Patricia, Mexico:** The Erasmus coordinator had told me of this Master and I wanted to take the opportunity. The content is very interesting, as well as the internship.

**Chung, Vietnam:** I got a scholarship from the Ministry of Education to do a master abroad. I chose France because it is a country of ancient culture and the study conditions are favorable. In addition, it is considered one of the best educational places in the world.