



ESECA

Master of Science and Technology

Julien PERCHOUX
Contact : julien.perchoux@n7.fr
master.eseca@n7.fr

TOULOUSE : WIKIPEDIA REPORT

FACTS

- ✓ 4th French city (~ 1 million inhabitants)
- ✓ 2000 years of history
- ✓ At the feet of the Pyrénées
- ✓ 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 **meteo france** the French meteorology agency
- ✓ A complete network of companies (Thales, Safran, Honeywell, Intespace,...) and research labs (CESBIO, IRAP,...)



TOULOUSE : RESEARCH FACILITIES AND CAMPUS



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,...**

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



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 (ENSEEIH)

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

M1

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

M2

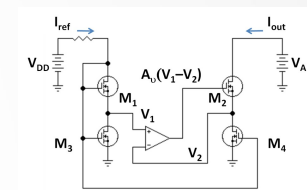
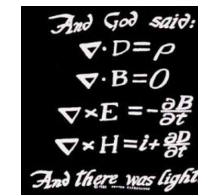
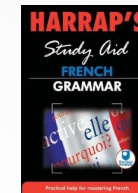
Specialization semester (325 h)

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

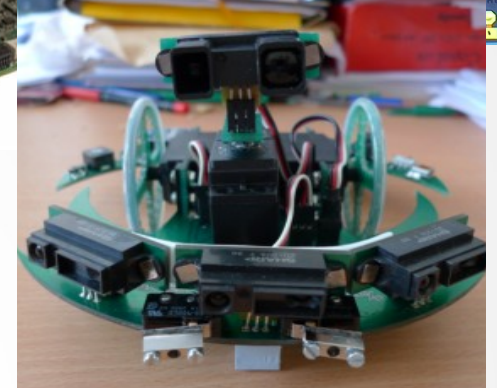
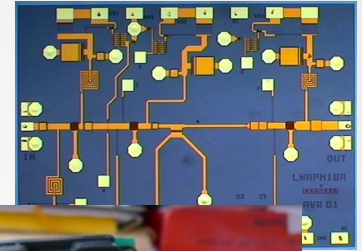
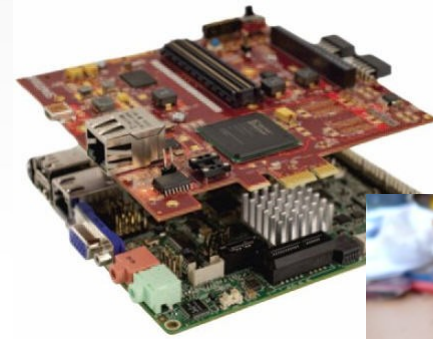


SPECIALIZATION SEMESTER

- Mobile autonomous systems
- Power Management
- Radar & remote sensing
- Telecoms

Intensive laboratory sessions

- Clean room facilities
- Industrial lecturers

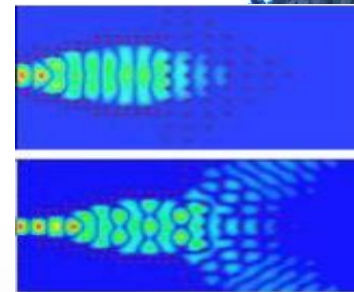
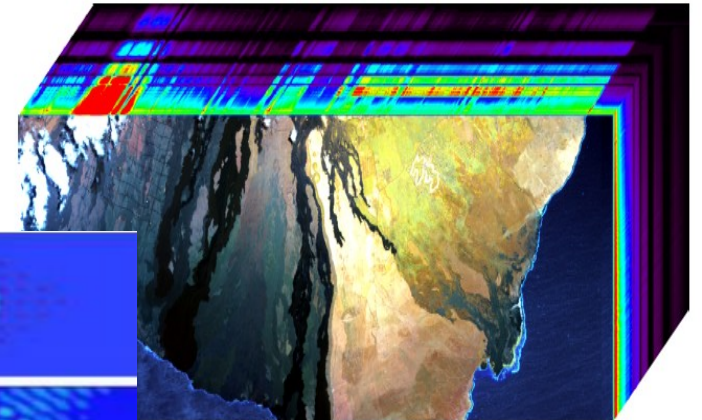


RESEARCH PROJECT

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)

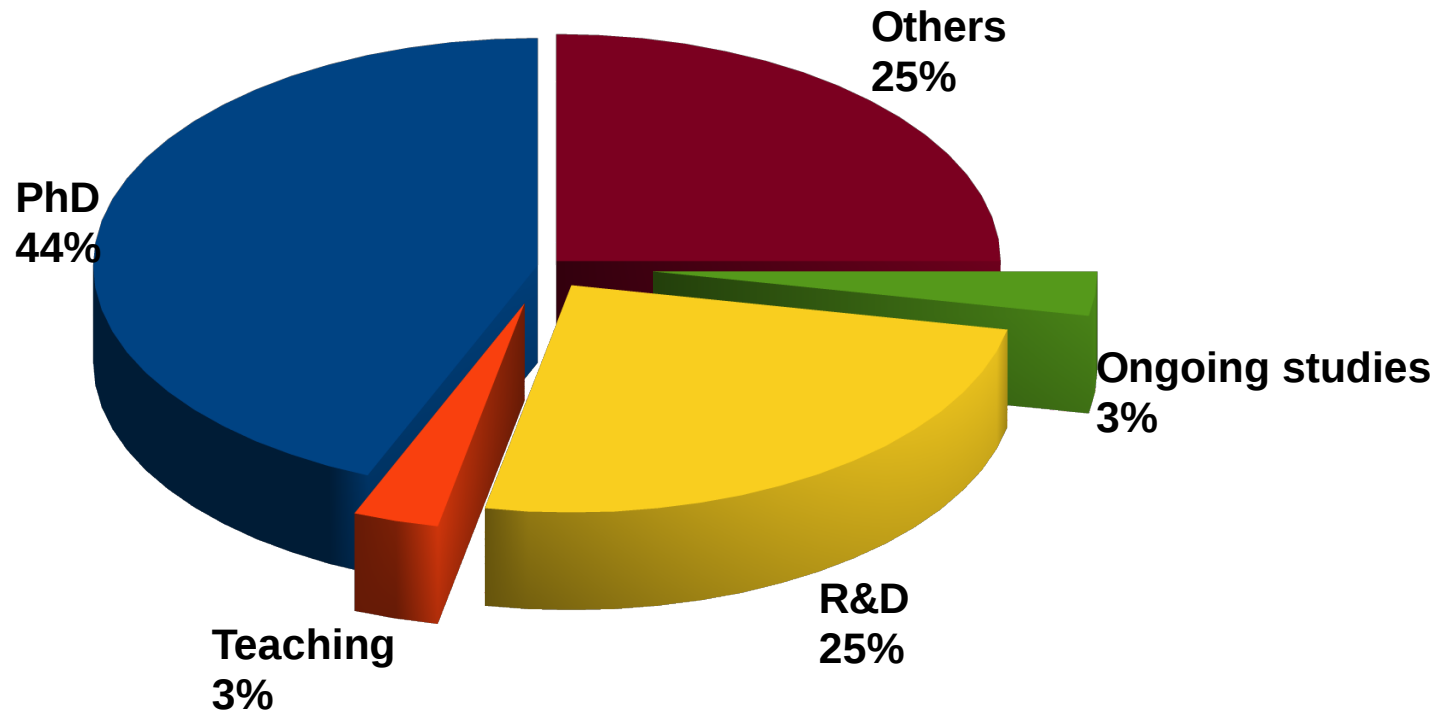


Industrial speakers and tutors

- Airbus
- Thales
- Freescale
- etc....



Job opportunities



Majority of PhD student (44%) Amongst them mostly private companies (Thales, Technicolor, Schneider,...)

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

Double diplomas

Double diplomas

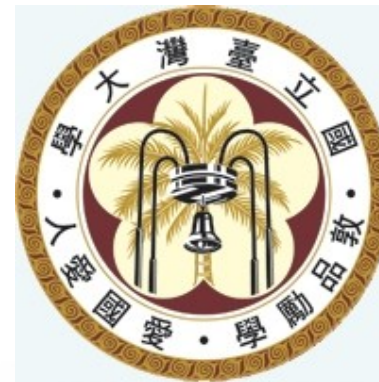
- USFQ (Quito, Ecuador)
- DTU (New Dehli, India)
- NTU (Taipei, Taiwan)
- Suptech (Tunis, Tunisia)

M1 in home University
M2 in Toulouse

→ **Direct recruitment
at the M2 level**



UNIVERSIDAD SAN FRANCISCO

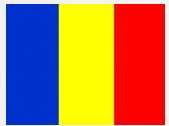


What they say!



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.*



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*



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.*



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.*