



# ENGINEER in Mechatronics & Embedded systems ROBIL

*Robots & Mobiles : Mechatronics and Embedded Systems*



## DEGREE QUALIFICATION BY APPRENTICESHIP in Bordeaux



Training certified by the C.T.I. (Engineering qualification committee) Engineering degree from ESTIA (Institute for Higher Education in advanced industrial technologies) specializing in Mechatronics & Embedded Systems, in partnership with ITII d'Aquitaine (Institut des Techniques d'Ingénieur de l'Industrie)

### TRAINING OBJECTIVES

ESTIA trains trilingual field engineers, who can be Method & Design office managers, production managers & project managers.

ESTIA trains them to master various skills such as computing, mechanics, energetics and electronics, so that they can be operational in numerous fields like aeronautics, automotive, electronics, agri-food industry, capital goods, I.T....

All ESTIA engineers receive a scientific and technological training, combined with a solid industrial culture, that will prepare them for 3 different positions :

- Digital design and innovation : developments and integration in mechanics, electronics, information technology
- Electronics, electrical engineering and embedded systems : processing of image, mobile robots, renewable energies
- Strategy, industrial organization : industrialisation, global logistics, performance management

These industrial engineering and mechatronics subjects can lead to a very broad range of jobs, which allow the apprentices to get a global vision of a company, while taking into account its permanent need for innovation and evolution.

### > ADMISSION

- Be in possession of a **level 2 or 3 qualification**: BTS, DUT, Science or technical degree or equivalent before July
- Be **under 30 years old** when signing the apprenticeship contract
- Pass the **entry tests and interviews**
- Sign an **apprenticeship contract** with a company



- MARCH** Deadline for applications
- MARCH/APRIL** Interviews and eligibility
- MAY > SEPT.** Signing of the apprenticeship contract
- SEPTEMBER** Beginning of the training



Application files available at

[www.formation-maisonindustrie.com](http://www.formation-maisonindustrie.com)

# COURSE CONTENT

## « CROSS-TRAINING » / MULTIFACETED SYLLABUS in 5 teaching units

### UE1

Electronics,  
electrotechnics  
& automatism

### UE2

Maths &  
Computer science

### UE3

Mechanics &  
Mechanical  
technology

### UE4

Strategy,  
organization,  
company  
procedures

### UE5

Approaches &  
enhancement of  
best practices

## 1st YEAR

### ELECTRONICS, ELECTROTECHNICS & AUTOMATISM

- Principles of electrical engineering
- Electronics
- Continuous-time systems
- Electrical engineering project

### MATHS & COMPUTER SCIENCE

- Algorithm et programming
- I.T. systems
- Web technology
- Maths
- Computer engineering project

### MECHANICS & MECHANICAL TECHNOLOGY

- Mechanical design and CAD design
- Mechanical engineering project
- Materials, industrial drawing and methods
- Structural mechanics

### STRATEGY, ORGANIZATION, COMPANY PROCEDURES

- Product lifecycle
- Organizations & companies
- Seminar about Entrepreneurship

### APPROACHES & ENHANCEMENT OF BEST PRACTICES

- Professional integration
- Project procedure
- English

## 2nd YEAR

### ELECTRONICS, ELECTROTECHNICS & AUTOMATISM

- Unobtrusive systems
- Automation
- Smart Electric Power Electronics
- Sensor and communication systems (option)

### MATHS & COMPUTER SCIENCE

- Object-oriented programming
- Information systems
- Equations (Laplace, Fourier...)

### MECHANICS & MECHANICAL TECHNOLOGY

- Composite materials
- Building of complex products
- Energy & liquid-conductive systems
- Advanced simulation in mechanics (option)

### STRATEGY, ORGANIZATION, COMPANY PROCEDURES

- Organizations and companies
- Systems engineering
- Lean management
- Industrial organizations management
- Industrial methods and technology
- Marketing and eco-design

### APPROACHES & ENHANCEMENT OF BEST PRACTICES

- Employability
- Project
- English

## 3rd YEAR

### ELECTRONICS, ELECTROTECHNICS & AUTOMATISM

- Robot vision
- Sensor and communication systems

### MATHS & COMPUTER SCIENCE

- Quick application development

### MECHANICS & MECHANICAL TECHNOLOGY

- Mechatronics systems design

### STRATEGY, ORGANIZATION, COMPANY PROCEDURES

- Marketing and eco-conception
- Organizations and companies

### APPROACHES & ENHANCEMENT OF BEST PRACTICES

- Project
- Employability
- Professional behaviour
- English

## TRAINING LOCATION

2 sites

6 semesters (one of them will take place in Bidart)

## IN COMPANY TRAINING

### ADVANTAGES

**A TRAINING COURSE WHICH IS BOTH FREE AND REMUNERATED**

**AN INTERNATIONAL DIMENSION**



The compulsory foreign internship is a rewarding experience, essential both for obtaining the degree and for pursuing a career in engineering. It must last at least 12 weeks and can be split up, for example, into 2 different periods of six weeks each.

**PERSONAL PROJECT**

ESTIA offers all its engineers fantastic opportunities to develop and value their creativity :

- Innovation days « Les 24h de l'innovation »  
[24h.estia.fr](http://24h.estia.fr)



- Summer Design Summer Camp :  
[www.designsummercamp.com](http://www.designsummercamp.com)
- Participation in several national competitions :  
Aerospace challenge, Robotics French Cup...



## INDUSTRIAL PROJECTS CARRIED OUT IN THE COMPANY

### A FEW EXAMPLES

#### POMA COLOMBIA

- Travel measurement & acceleration at the head of cable cars towers

#### GETRAG FORD TRANSMISSIONS

- Re-tooling and installation of 5 shock detection scanning machines

#### THALES AVIONIC

- Development of a virtual keyboard for a cockpit
- 3D representation of an aircraft trajectory

#### IK4-IDEKO

- Integration of a robot arm manipulator used as a machine tool assistant

#### GRADEL

- Development of an automated system for the deployment of a satellite's zero gravity solar panels

#### AIRBUS HELICOPTERS

- Virtual hydraulic test bench to define distributors' performances

[www.usinenouvelle.com](http://www.usinenouvelle.com)

**L'USINE  
NOUVELLE**

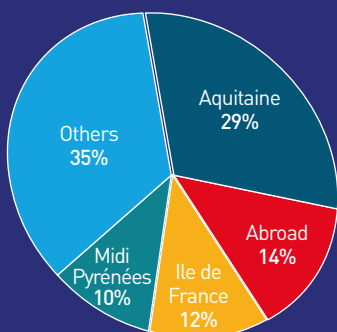
ESTIA

**20<sup>th</sup>** in the 2017 overall ranking for  
« Usine Nouvelle » Engineering Schools

## WHAT HAPPENS NEXT ?

### NUMEROUS CAREER POSSIBILITIES FOR OUR APPRENTICES

- Within any industrial sector, thanks to their broad skills in engineering, project management and innovation, combine with ESTIA's systemic approach to the syllabus.
- In any country thanks to their language skills in French, English and Spanish.



Source : enquête CGE 2016

### INFORMATION AND APPLICATION

Information & application files available on the following websites  
[www.itii-aquitaine.com](http://www.itii-aquitaine.com)  
 or  
[formation-maisonindustrie.com](http://formation-maisonindustrie.com)

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 33523 BRUGES CEDEX

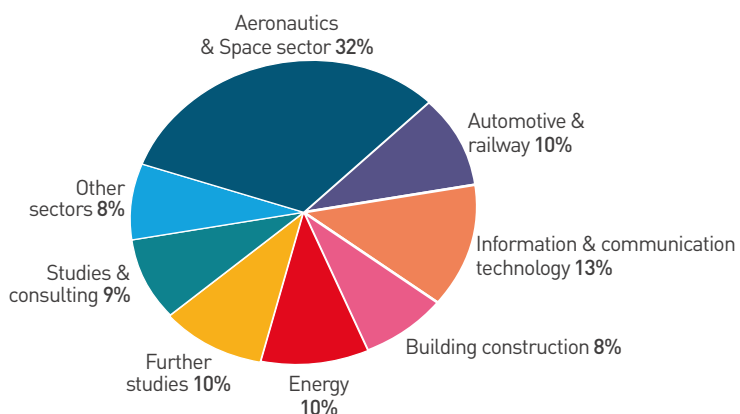
### A FEW EMPLOYERS' NAMES

AIRBUS • ALTEN • ALYOTECH • AREVA • ASTRIUM • CAPGEMINI • CS COMMUNICATION & SYSTEMES • DASSAULT AVIATION • DASSAULT SYSTEMES • DERICHEBOURG • EDF • EUROCOPTER • GDF SUEZ • GECI INTERNATIONAL • HELILEO • INEO • LATECOERE • LA POSTE • LEGRAND • LYONNAISE DES EAUX • RENAULT • PSA • DAHER SOCATA • TECHNOFLEX • TEUCHOS • THALES AVIONICS • THALES AIR SYSTEMS • SAFRAN TURBOMECA • ZODIAC AEROSPACE • TOTAL • SNCF • SOGETI HIGH TECH • FLEXLINK... and hundreds of others companies...

Young graduates can quickly reach managerial positions with their first job :

- 25% are in charge of other people
- 40% are responsible for a budget
- 20% manage a team
- 80% are project leaders

### EMPLOYABILITY - PER INDUSTRIAL SECTOR - FOR THE APPRENTICES WHO GRADUATED AT THE END OF 2015



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