



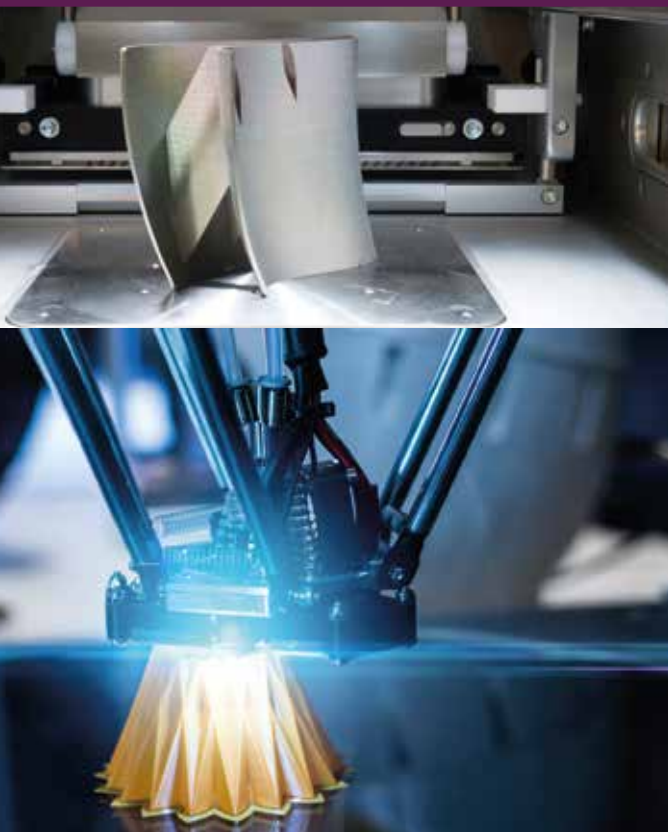
Mechanical Engineering ENGINEER



With a speciality in advanced manufacturing processes



GRADUATE TRAINING PROGRAM BY APPRENTICESHIP in Bordeaux



Currently in the process of obtaining the "C.T.I." accreditation (Commission of Engineer's Titles)

An Engineering Diploma from E.N.S.A.M. ("Ecole Nationale Supérieure d'Arts et Métiers"), with a specialization in Mechanical Engineering - advanced manufacturing processes is done in partnership with the Institute for Industrial Engineering Techniques ("ITII Aquitaine")

TRAINING OBJECTIVES

Engineers specializing in Mechanical Engineering - Advanced Manufacturing Processes, have to deal with issues at the heart of innovation and competitiveness in the factory of the future. Training enables them to :

- Adapt the definition of a product according to the subtractive and/or additive elaboration processes
- Specify the need, choose and implement the combination of Materials and processes according to technical requirements, quality, costs and deadlines.

The holder of this engineering degree will be a specialist in material removal and addition ("3D printing"). As the designer of the processes associated with it, they will be involved in every stage of the process (definition-industrialization-manufacture, assembly and testing), obtaining the elements and mechanical systems for the manufacture of products.

The training will cover areas of expertise such as "traditional" industrial automation with high precision machining, as well as new skills linked to additive manufacturing.

> LOCATION

Bordeaux, a city with a future! Recently listed as a UNESCO World Heritage Site and voted France's 2nd city. Bordeaux and its suburbs offer numerous economical, industrial, cultural and patrimonial assets. In addition, its remarkable geographical location, amid the river, the ocean and countryside, the Bordeaux metropolis is considered to be one of the most attractive regions in France

> ADMISSION

- **Having a level 2 or 3 qualification** : BTS, DUT, science or technical degree or equivalent by July
- Being **under 30 years** old when signing the apprenticeship contract
- Passing the **entry tests and interviews**
- Signing an **apprenticeship contract** with a company



MARCH

Deadline for applications

MARCH/APRIL

Interviews and eligibility

MAY > SEPT.

Signing of the apprenticeship contract

OCTOBER

Beginning of the training



Application files available at

www.formation-maisonindustrie.com

CONTENTS OF THE TRAINING



TEACHING UNITS

ENGINEERING SCIENCE

- Maths
- Mechanics
- Materials' Engineering
- Statistics/Experimental design
- The Materials' resistance
- Electronics
- Materials' Integrity
- Information Systems
- Analysis and signal processing for NDT (Non Destructive Testing)
- Robotics/Collaborative robots: strategic significance

MANAGEMENT

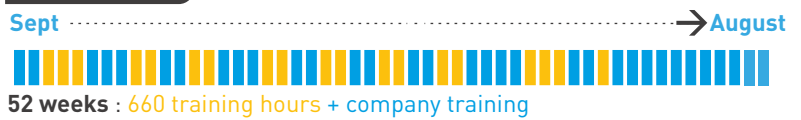
- Health, Safety and Environment
- Production Management
- Conducting Meetings
- Management/Team building
- Strategic management
- Employment Law - legal environment
- Human resources' management
- Economics - Business management and marketing
- English
- Communication

INDUSTRIAL TECHNOLOGY

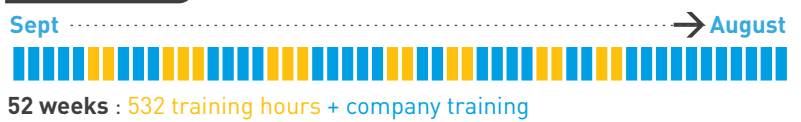
- CAD/CAM
- Quality
- Functional dimensioning/ Tolerancing
- Manufacturing methods
- Core Maintenance principles
- Precision assembly
- NDT (Non-destructive Testing)
- Innovation
- Projects on Polymer additive manufacturing
- Projects on Metal additive manufacturing
- Projects on subtractive manufacturing
- Projects on Complex machining
- Assembly - Finishing system
- Projects on sheet metal implementation
- Final innovation project with a focus on R & D

APPRENTICESHIP RHYTHM (in weeks)

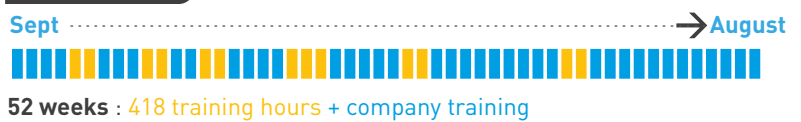
1ST YEAR



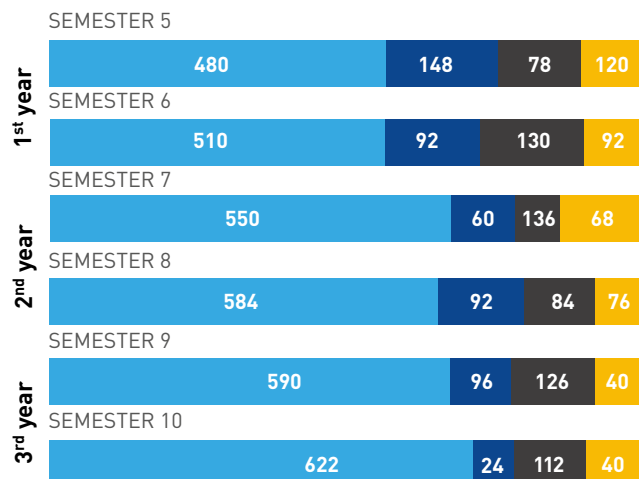
2ND YEAR



3RD YEAR



TEACHING UNITS ALLOCATION (in hours)





IN COMPANY TRAINING

ADVANTAGES

A TRAINING 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.

PROJECT-BASED INSTRUCTION

Technology Module in project mode in every semester

EXAMPLES :

Semester 5 :

- Polymer additive manufacturing
- Subtractive manufacturing (machining)

Semester 10 :

- Final innovation project with a focus on R & D

PROJECT EXAMPLES SUGGESTED BY MANUFACTURERS

During the final two years, an industrial project is undertaken for the company, under the supervision of the apprenticeship tutor, accompanied by the pedagogical tutor.

Examples

Aeronautic subcontracting :

Involvement in the development of the Design and Methods office's technical expertise for the design and additive manufacturing of metal and plastic parts for the Aerospace and Defence Industries.

Biomedical sector :

Development of new laser-assisted Bio-printing solutions: mechanical design, layout, definition file, specifications, upgrading of the existing system.

Aeronautics sector :

Writing of a guide in the methodology of Design in metal additive manufacturing, creation of a cost simulator, study of the properties of aluminium powders from different suppliers.



Eduniversal Ranking 2018-2019

TOP 10 2018-2019

Engineering schools specialized in Aeronautics, Mechanics & Automotive - « Foundation Degree »

7



Arts et Métiers ParisTech

Engineer with a specialization in mechanics in partnership with ITII Aquitaine, Champagne-Ardennes and « PACA » (Provence, Alpes ans Azur Coast)

WHAT HAPPENS NEXT?

EQUIPMENT...



Formlabs 2



ProX 100 3D System



F170 de Stratasys

JOB PROSPECTS

Within the various industrial sectors (Aerospace, automotive and equipment manufacturers, electronics and micro-electronics, transformation industries, chemical industries), in a production or service based company, in France or abroad, the production maintenance engineer will be able to apply their skills in the following positions :

PRODUCTION

DESIGN OFFICE

- Design-Redesign Engineer
- Product Development Engineer

METHODS OFFICE

- Industrialisation engineer
- Process development engineer

RESEARCH & INNOVATION OFFICE

- Network & Telecom engineer

INFORMATION AND APPLICATIONS

Application files available at
www.itii-aquitaine.com
ou www.cfai-aquitaine.org

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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 CFAI Aquitaine.

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 mechatronic's 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.

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- Sign an **apprenticeship contract** with a company



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Deadline for applications

MARCH/APRIL

Interviews and eligibility

MAY > SEPT.

Signing of the apprenticeship contract

SEPTEMBER

Beginning of the training



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www.formation-maisonindustrie.com

« 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 PRATICES

- 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

ALTERNATING RHYTHM (in Week)

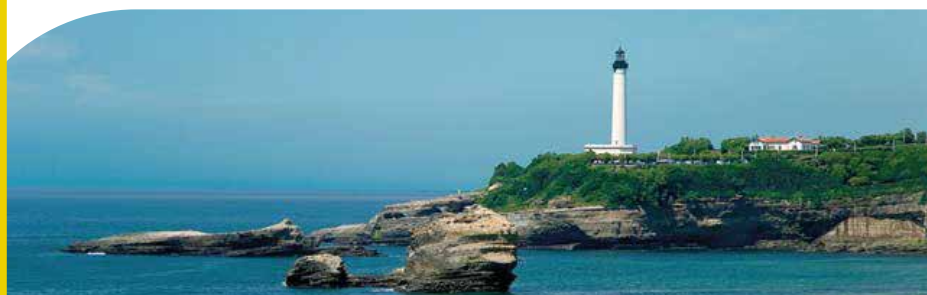
Sept → August



TRAINING LOCATION

2 sites :

- 3 semesters in Bidart
- 3 semesters in Bruges



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



- Summer Design Summer Camp :
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

L'USINE NOUVELLE

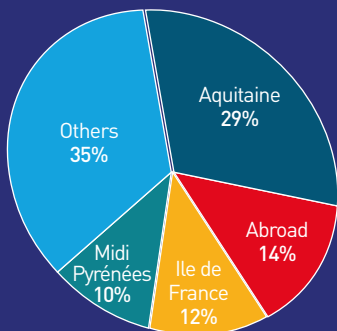
ESTIA

20th 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

formation-maisonindustrie.com

40, av. Maryse Bastié - BP 75
33523 BRUGES CEDEX

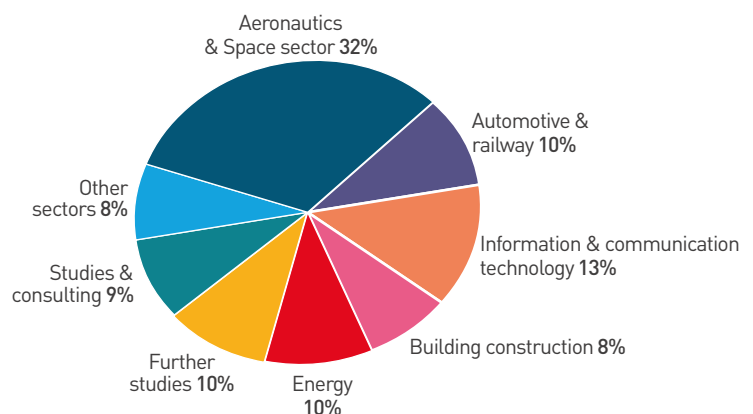
A FEW EMPLOYERS' NAMES

AIRBUS • ALTEN • ALYOTECH • AREVA • ASTRUM • 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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Technologies Industrielles Avancées
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ENGINEER

Production - Maintenance



DEGREE QUALIFICATION THROUGH APPRENTICESHIP in Bordeaux



Training certified by the C.T.I. (Engineering Qualifications Committee)
Engineering degree from ENSAM (Ecole Nationale Supérieure d'Arts et Métiers) specializing in Mechanics, in partnership with ITII Aquitaine (Institut des Techniques d'Ingénieur de l'Industrie)

TRAINING OBJECTIVES

To train field engineers who will be able to:

- Organize, optimize and supervise the means and manufacturing processes to improve the company's competitiveness.
- Organize and supervise maintenance activities with the aim of increasing reliability on production means' and costs' management
- Justify an investment opportunity and take part in the industrialization of production means (including robots, automated systems...)
- Guarantee the respect of the company's regulatory constraints concerning QHSE*
- Master Project Management

*Quality, Hygiene, Safety, Environment

In accordance with the company's strategic choices :

Option A : Industrial performance management

- Diagnose and define an industrial performance strategy
- Deploy and lead an approach of continuous improvement
- Accompany change using a skills based approach

Option B : Integration of innovative technologies

- Integrate technologies that will allow the company to become more competitive
- Set up monitoring systems to ensure the process' reliability and the product quality
- Encourage the spread of new technologies in the company and help the teams master them

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Deadline for applications

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Interviews and eligibility

MAY > SEPT.

Signing of the apprenticeship contract

OCTOBER

Beginning of the training



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ACADEMIC PROGRAMME



TEACHING UNITS

SCIENTIFIC

- Mathematics, Mechanics, Physics
- Materials, Strength of materials, CAD
- Communication sensors and procedures
- Automatism, Electrotechnics
- Fluid and Vibrational mechanics
- Industrial thermics

INDUSTRIAL

- Management and organization of the Production
- Management and organization of the maintenance
- Project Management
- Methods and manufacturing processes
- Quality, Safety, Environment
- Innovation, technology watch/surveillance
- Metrology & 6 Sigma
- Information systems
- Supply chain

MANAGEMENT

- Management, communication
- Managing a team
- Teamwork
- Pedagogy and didactics
- Employment law, company regulations
- Human resources Management
- Accounting and financial management
- Strategic choices
- Company creation and takeover
- English + TOEIC

OPTION A : 120 hours

- Strategic Diagnostic on Performance improvement
- Management of Progress plans
- Change management through a skill approach (Forward planning of employment and skills)
- CAPM and production organization

OPTION B : 120 hours

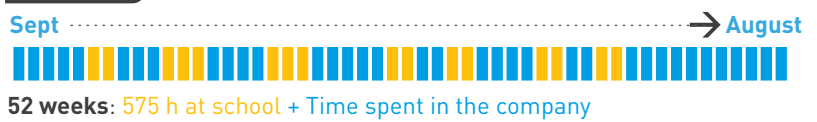
- Ergonomy
- Work related risk assessment
- Introduction to Robotics/industrial cobotics
- Risk analysis related to the integration of robotos/cobots
- Integration project

TIMETABLE - TRAINING/WORK (in hours)

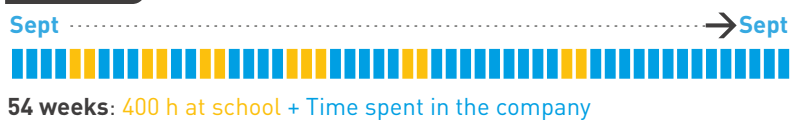
1ST YEAR



2ND YEAR



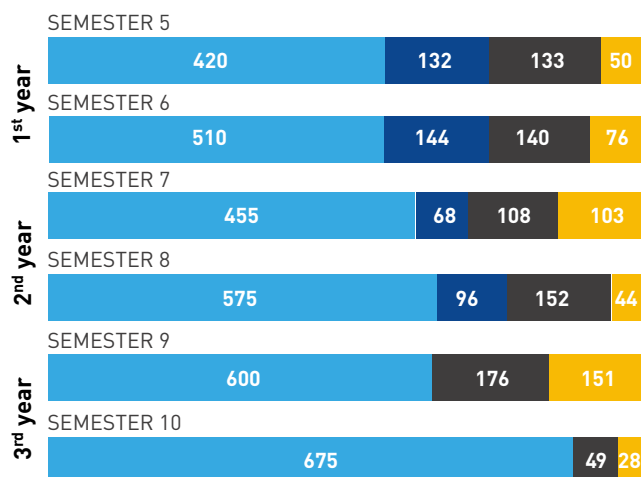
3RD YEAR



■ Time spent in school ■ Time spent in the company

NUMBER OF HOURS COURSES BY SUBJECT (in hours)

■ Time spent in the company ■ Scientific ■ Industrial ■ Management



option A or B = 120h between semester 8 and semester 9

IN COMPANY TRAINING



ADVANTAGES

A TRAINING WHICH IS BOTH
FREE AND REMUNERATED

AN INTERNATIONAL
DIMENSION

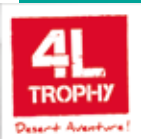


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PERSONAL PROJECT

As part of the Project Management training a personal project is to be completed:

- A participation in the **World Skills France** competition
- Involvement in a project of international solidarity
Example : **technical support to Madagascan villages** (giving access to electricity, water, hygiene and health)
- Development & leadership of the **alumni network for ex-apprentices**
- Participation in voluntary raids



INDUSTRIAL PROJECTS CARRIED OUT IN THE COMPANY

During the final two years, an industrial project is realized for the company, under the supervision of the apprenticeship tutor and supported by the teaching tutor.

EXAMPLES

Study and deployment of a control and assembly line in accordance with the « FACTORY OF THE FUTURE »

Study on the reliability of a paper machine's rotations and vibrational instrumentation

Implementation of an MSP (Management System Plan)

Improvement of the Factory's Production equipment availability

Optimization of the manufacturing quality and availability of a chip board line

Deployment of a cooperative CMMS, a first step towards predictive maintenance

Reduction of material losses in a company from the agro-food sector through a continuous improvement approach (6 Sigma)

Setting up a policy of task reduction and Lean Manufacturing in a SME

Implementation of a « Health and safety Management System » approach at work

Decision to set up an organization and a working approach in order to increase the skills of operators and the operational results

Eduniversal 2018-2019 ranking

TOP 10 2018-2019

Engineering schools specializing in aeronautics, mechanics
& Automotive - Post-prepa

7
★★★★

Arts et Métiers Paris Tech

Engineer with a specialization in mechanics in partnership with ITII Aquitaine, Champagne-Ardenne and « PACA » area

WHAT HAPPENS NEXT?

PROFESSIONAL EMPLOYMENT OR FURTHER STUDIES IN FIGURES

76,7 %

at the end
of the training

98 %

6 months after
the end of the training

36 k€

gross annual
salary after
the training

50 %

employment contracts
are signed with the
company who offered
the apprenticeship

Average of the last 3 years

INFORMATION AND APPLICATION

Application files available at
www.formation-maisonindustrie.com

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JOB PROSPECTS

Within the various industrial sectors in France and internationally (service or manufacturing industries): aeronautics and space, automotive and equipment manufacturers, electronics and micro-electronics, transformation industries, chemical and petro-chemical industries, the agro-industrial industry.

PRODUCTION:

Engineer responsible for the production and its improvement

MAINTENANCE:

Maintenance engineer in production or maintenance service companies

METHODS:

Engineer responsible for the improvement of products and processes

INDUSTRIALIZATION:

Engineer responsible for products and processes industrialization

SAFETY:

Engineer responsible for the development of a safety policy and industrial risk management

ENGINEERING AND CONSULTING:

Organisation analysis, technical projects

Q.S.E.:

Engineer responsible for the setting up of an intergrated management policy based on quality, security and environment

