POLYTECH®
LILLE

A Graduate School of Engineering within a leading Science University in France.

Member of the first national network of Graduate Engineering Schools : the Polytech Group

THE ADVANTAGES OF A GRANDE ÉCOLE AT THE HEART OF LILLE 1 UNIVERSITY

Polytech Lille is a well-known graduate university engineering school located in Lille 1 University, which is acknowledged as being one of the best scientific universities in France.

The school is located on a vast 110-hectare campus at the center of a large scientific and technical pole. It counts 18,000 students, including 21% of international students from 70 countries and 1,000 PhD students, of which 30% are international students, along with 39 accredited research teams. Lille 1 University brings together 8 major scientific domains. At the heart of this high-level research environment, Polytech Lille offers state of the art courses that are at the cutting edge of new technologies.
As part of Lille 1 University, Polytech Lille is a member of the PRES «Université Lille Nord de France», which is a higher-education teaching and research cluster in the Nord-Pas de Calais region.

>> A Grande École and founder member of the Polytech group

With 350 graduates per year and more than 8,500 working engineers, Polytech Lille is the most important engineering school north of Paris. The school is accredited to award the «diplôme d'ingénieur» by the French accreditation board for engineering (CTI) and is a member of the «Conférence des Grandes Ecoles» (CGE)

Polytech Lille is a founder member of the Polytech group made up of 12 graduate university engineering schools.

Key points:

- A modern building (constructed in 2000) of over 25 000 m² on the campus of Lille 1 University,
- 8,500 graduate engineers since its inception,
- 1,335 students,
- 350 engineering graduates each year,
- 150 students take part in our special «parcours des écoles d'ingénieurs Polytech (PeiP)», which corresponds to the first two years of a scientific degree along with complementary modules at Polytech Lille allowing direct access to the schools of the network after validation of the courses taken.
- 90 PhD students,
- 160 academic staff,
- 70 member administrative and technical staff,
- 17 associated research laboratories.

Advantages for students:

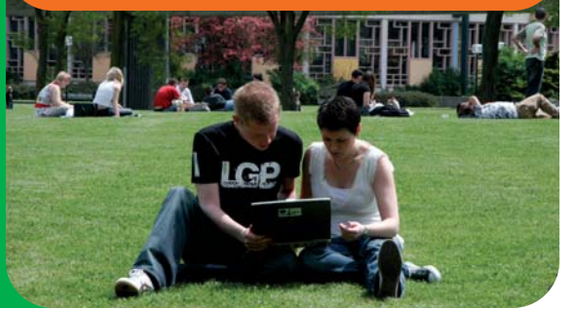
- Student accommodation
- 3 University on-campus restaurants
- University library,
- Student centre,
- University health center
- University sports center including three sports halls, playing fields, a clubhouse...

A green campus at the heart of the metropolis of Lille

The school is located at the center of an extremely green university campus in Villeneuve d'Ascq (Université Lille 1).

It is only 15 mn from the centre of Lille thanks to a direct metro line between the campus and the city.

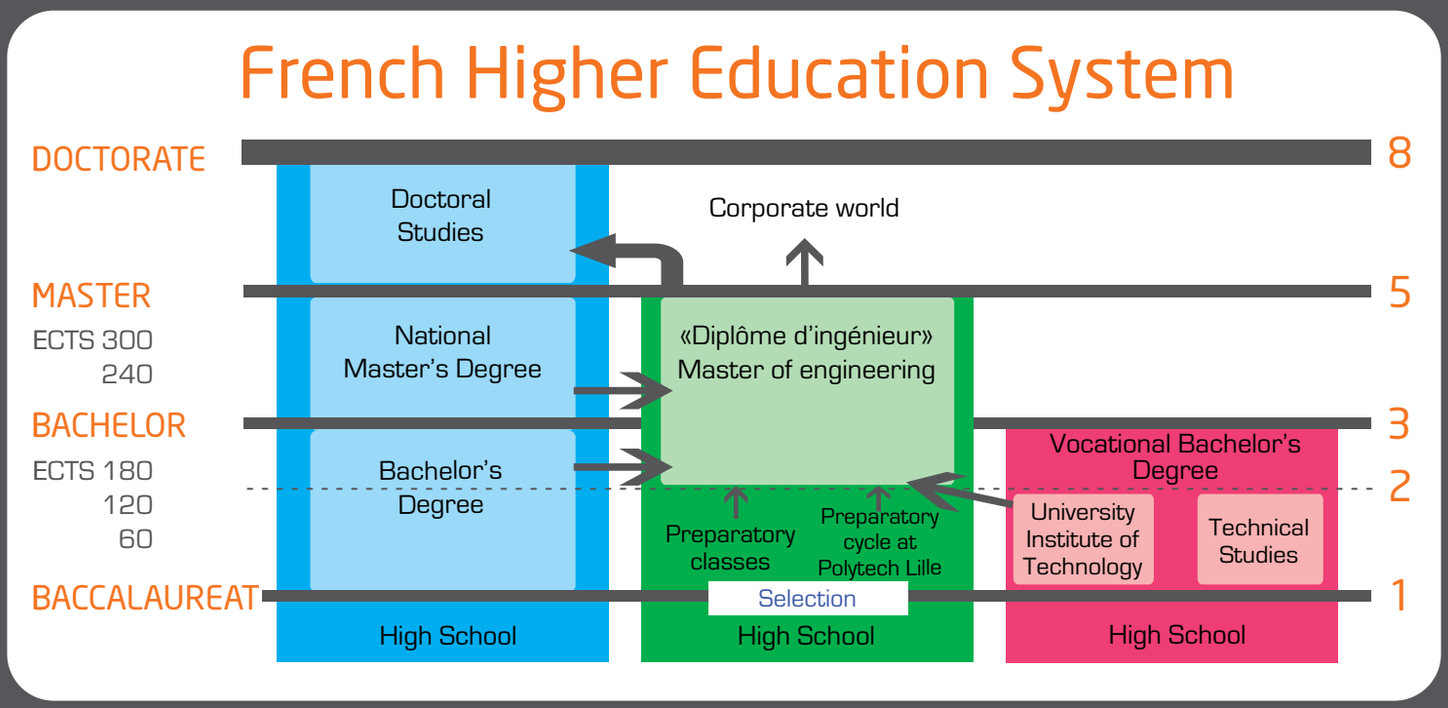
Two metro lines cover the metropolitan area.



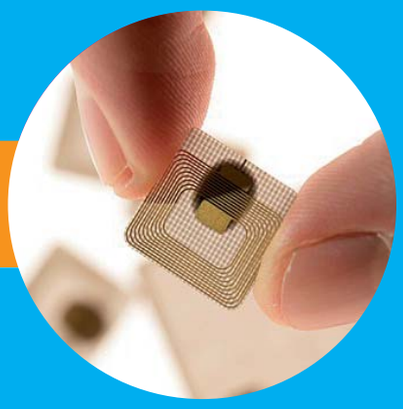
«Grandes Ecoles» are prestigious competitive-entrance higher education establishments

7 SPECIALIZATIONS:

- Civil Engineering,
- Mechanical Engineering,
- Software Engineering and Statistics,
- Biological and Food Engineering,
- Electrical and Computer Engineering,
- Measurement Systems and Applied Business,
- Materials Science



Promoting the scientific reputation of Polytech Lille



The skills of the researchers at Polytech Lille cover a wide range of engineering sciences and are based around 5 poles:

> **Biological and food engineering**
> **Mathematics and modelling**
> **Mechanics and civil engineering**
> **Physico-chemistry and molecular and material sciences**
> **Information and communication sciences and technologies**

Multidisciplinary research is carried out leading to solutions being proposed for certain complex problems brought to light by industry.

Key points: 17 associated research laboratories, 113 academic staff, 10 technological platforms. The school is a partner of 3 competiveness clusters: Trans (transport), Maud (materials and applications for sustainable use) and NSL (nutrition-health-longevity).

Biological and food engineering

Associated research laboratories:

- Laboratoire de génétique et évolution des populations végétales (GEPV)
- Unité de glycobiologie structurale et fonctionnelle (UGSF),
- Laboratoire de procédés biologiques, génie enzymatique et microbien (ProBioGem)
- Laboratoire stress abiotique et développement des végétaux cultivés (SADV)

Mathematics and Modelization

Associated research laboratories:

- Laboratoire Paul Painlevé,
- Laboratoire d'Informatique Fondamentale de Lille (LIFL – fundamental IT),
- Institut National de Recherche en Informatique et en Automatique (INRIA)

Mechanics and Civil engineering

Associated research laboratories:

- Laboratoire Génie Civil et Géo-Environnement (LGCGE)
- Laboratoire de Mécanique de Lille (LML)

The physico-chemistry and molecular science of materials

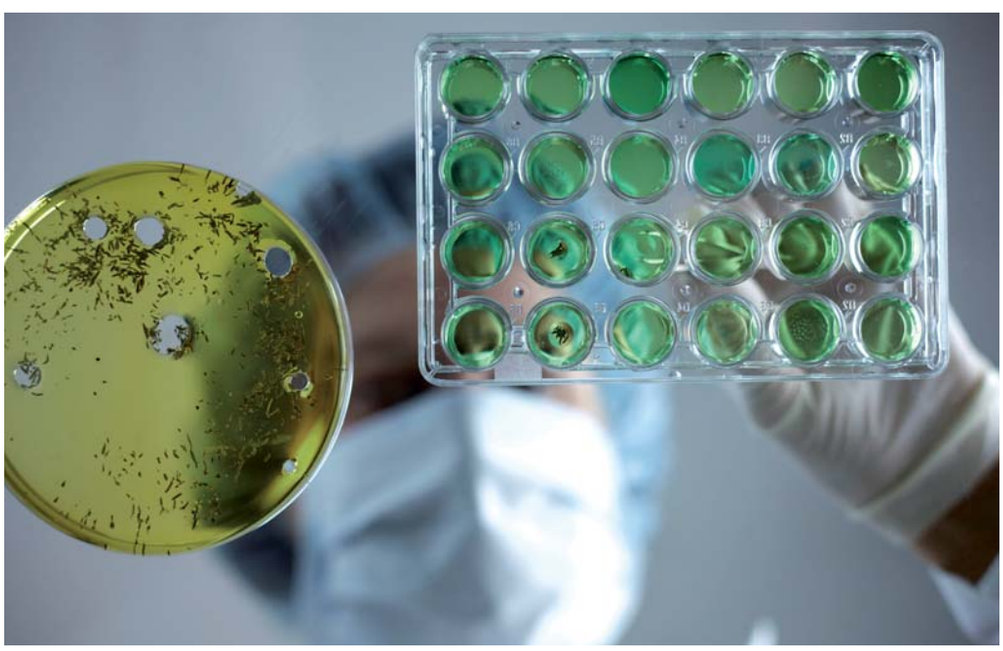
Associated research laboratories:

- Laboratoire Génie Civil et Géo-Environnement (LGCGE)
- Laboratoire de Mécanique de Lille (LML)

Information and Communication Sciences and Technologies

Associated laboratories:

- Laboratoire d'Automatique, Génie Informatique et Signal (LAGIS)
- Institut d'Electronique, de Microélectronique et de Nanotechnologie (IEMN)
- Laboratoire d'Informatique Fondamentale de Lille (LiFL)
- Laboratoire d'Electronique et d'Electrotechnique de Puissance de Lille (L2EP)



Promoting corporate involvement at Polytech

At Polytech Lille, a network of 8,500 qualified engineers, working at executive or management level, is available to participate in the training of their future colleagues and accompany them in their professional careers.

> At least 20% of the courses are given by industrialists (presentations, conferences)
> Tutorials, case studies, technical projects and final year projects provided by companies
> Our researchers excel in R&D through the implementation and monitoring of their research projects and collaborative contracts between businesses and laboratories

Various companies are present within the different levels of management at the school: governing body, committees...
The school has developed partnerships with more than 350 businesses.

Placements and Projects

The student engineers at Polytech Lille undertake at least 26 weeks of placements during their studies. These placements are carried out mainly within companies.

3rd year: "Work experience" placement
Duration: 4 to 8 weeks
4th year: "Technical" placement / assistant engineer:
Duration: 6 to 13 weeks
5th year: Engineer placement.
This placement can take place the form on a research project with a public or private laboratory.
Duration: 4 to 6 months

Project-based learning

Being an engineer involves implementing projects that take into account various technical, organizational and financial aspects. This approach is initiated within the School via active project-based learning throughout the course.
Projects allow the student engineers to apply knowledge, information, competences and social skills to concrete issues.

The Industrial Relations department is the main interface between companies and the school, especially with respect to the placement offers, partnership proposals and conferences.

The alumni association: a network of more than 8,500 qualified engineers

- Maintains a link between engineers
- Helps with integration into the corporate world
- Directory of professional contacts
- 5,000 job offers
- A magazine
- Company visits
- Organization of events and co-organization of degree ceremonies

Not-to-be-missed events:

Entrepreneurial culture week:
This event is aimed at making student engineers aware of innovation. It involves the presentation of various professions, real-life experiences, advice from professionals from different fields, round-table discussions...

> The «Open'Stages day» (placement forum)
> The annual forum at which companies and student engineers can meet.
> The "Pauses-Ingé" (informal discussions)

International profiles

Training multicultural engineers through the promotion of experiences abroad

Polytech Lille actively promotes international mobility. It offers students the chance to develop their ability to adapt to new situations and cultures while broadening their scientific, technical and linguistic knowledge abroad.

The school has thus developed partnerships with institutions recognized for the quality of their engineering programs and their research.
Currently, 66% of graduates have had at least one experience abroad during their three years of study at Polytech Lille.

The international relations department of the School ensures that students are personally accompanied during their period of mobility.

Welcoming and training international students

Every year, Polytech Lille welcomes international students either through exchange programs, or as part of a degree program. A specific double degree course has been set up with two Chinese universities : Hohai University and Nanjing University of Agriculture. Since 2006, 90 engineers have successfully obtained the two degrees and are mainly employed by international companies in China.
The School actively participates in the "n + i" network. The aim of this network is to train internationally-focused engineers by proposing tailor-made programs.

More than 20 international student engineers create a multicultural atmosphere within the School.

Exchange programs and bilateral cooperation agreements : ERASMUS, CREPUQ, BRAFITEC...

Experiences abroad

A study period

A semester or a year in one of the partner universities in Europe, such as RWTH Aachen University (Germany), Graz University of Technology (Austria), Universidad Politécnica de Madrid (Spain), Politecnico di Milano (Italy), Aalborg University (Danemark), Linköping University (Sweden), Warsaw University of Technology (Poland), Universitatea Politehnica Bucuresti (Romania)..., in Quebec : Ecole Polytechnique de Montréal, l'Université de Sherbrooke, Université Laval....) or in the United States, the University of Oklahoma, Oklahoma State University...), in Latin America, Universidade Federal de Rio de Janeiro (Brazil), Universidad de Santiago de Chile, Universidad Federico Santa Maria de Valparaiso (Chile), Universitdad Nacional de Ingenieria, Lima (Peru), in India : Indian Institute of Technology, Madras ...

A placement in industry

Thanks to the participation of Polytech Lille in the European Erasmus Placement program within the Polytech Group, a monthly grant is awarded to students from the School who carry out a work placement in a European company.

The VIE program (Volontariat International en Entreprise) allows students in their final year or new graduates of the School to carry out a technical mission abroad, which can last between 12 and 24 months, for a company based in France (ex : Ciment Lafarge, Bouygues TP, Total, Bonduelle, Nissan, Nestlé, Alstom, Thales, ...)

A research project

This can be undertaken within a university laboratory or in a scientific research centre: destinations include Chalmers University (Sweden), the University of Bradford (UK), Durham University (UK), Wroclaw University of Technology (Poland), Florida Institute of Technology (USA), Université de Sherbrooke (Québec), Hohai University, Agricultural University of Nanjing (China), IIT Madras, IIT Kharagpur (India)...

Civil Engineering

Water Reuse
Buildings
Geophysics
Soil mechanics
Rock mechanics
Site organisation
Construction works
Underground works
Urban networks
Earth sciences
Structures
Public works

OBJECTIVES

The department of civil engineering offers an extremely broad program in the areas of geotechnics and civil engineering. This double competence opens up a large range of employment prospects for graduates in all areas of civil engineering, from the design of works to their realisation. Engineers from this program are capable of successfully carrying through the different construction phases, specifically the design, analysis, calculation and realisation of different civil engineering works. The program is constantly being adapted to the needs of companies by taking into account the evolution of techniques and methods.

SECTORS OF ACTIVITY AND COMPANIES

> Construction and public works companies (BOUYGUES, VINCI, EIFFAGE, RAMERY, RABOT DUTHILLEUL, SPIE-BATIGNOLLES, ...),
> Engineering, design offices (OTH, SOVEP, SOGREAH...),
> Soil mechanics and geophysics offices (SIMECSOL, MENARD, ...),
> Control offices (SOCOTEC, APAVE, QUALICONSULT, VERITAS, ...),
> Para-public sector (BRGM, EDF, SNCF, ...)
> Local communities, administrations (LMCU, municipal technical departments, CETE, ...),
> Research and Development (TOTAL, ANDRA, ...)

MAIN PROFESSIONS OPEN TO NEW GRADUATES

The range of employment perspectives open to graduates is extremely wide. An engineer from this program can intervene in any stage of the construction process, from the study of the soil to the completion of the project:

> Soil study, calculation of foundations,
> Design of the site (calculations, methods, examination of the costs),
> Implementation of works (conception of the shell, finishings, interacting with trade associations, specialized works),
> Technical control, QSE (Qualité Sécurité Environnement – Quality Security Environment), ...
> Project management (managing the project, contracting).

PROGRAM

During semesters 5 and 6, the program focuses mainly on the fundamentals of civil engineering, earth sciences (geology, soil mechanics, underground hydraulics) and technical courses (site organisation, concrete, excavations...).

In semesters 7 and 8, the student broadens his/her knowledge of geotechnics and structural calculations, while also taking a course in site calculations (concrete structures, pre-stressed concrete, metallic constructions...).

In semesters 9 and 10, the student specializes in one of the following areas:

> **Urban engineering:** regulations, renovation, roads and utilities and urban site works.

> **Design in civil engineering:** planning, design, urbanism and the environment.

> **The lifecycle of works:** new materials in civil engineering, resistance and aging of materials, detecting and repairing sites

Special works: underground works, seismic structures, supporting works and reinforcement.

These classes, which take the form of workshops, are given by professionals.

PROJECTS LINKED TO COMPANIES OR LABORATORIES

> Multidisciplinary projects in the 3rd year (50h),

> Case studies in the 4th year, supervised by professionals, focusing on site organisation (75h) and the design and sizing of sites (75h),

> Final-year project of between 4 and 6 months in a company.

LINKS WITH RESEARCH

The lecturers in this program mainly carry out their research in geomechanics, within the "Laboratoire de Mécanique de Lille" (LML) and the "Laboratoire Génie Civil et Géo-Environnement" (LGCGE). The areas studied are: the construction of tunnels on moveable ground, deep tunnels, foundations, soil reinforcement, petrol engineering, deep storage, THMC behaviour of rocks and concretes.

After training to be an engineer, the students can continue their studies via a PhD, often in collaboration with industry, or via a specialized advanced Masters in water engineering, in conjunction with an industrial partner.

Mechanical Engineering

Design
Innovation
Sizing
Modelling
Optimisation
Sustainable development

OBJECTIVES

The department trains multi-skilled mechanical engineers capable of leading or participating in projects based on the design, optimisation and realisation of innovative products, facilities and procedures. Training in this area combines mastery of scientific and technological knowledge with learning about state of the art digital simulation tools. The aim is to cultivate the future engineersengineers' creativity and encourage them to resolve concrete problems, while taking into account the individual and his/her environment, within a project team.

SECTORS OF ACTIVITY AND COMPANIES

> Aeronautical, sea and automobile transport: 34 % (AIRBUS, EADS, SNECMA, ALSTOM, BOMBARDIER, PSA, RENAULT, BOSCH, VALEO, ...),

> Energy: 30 % (AREVA, MAIA, EOLIS, JEUMONT, ...),

> Research: 9 % (ONERA, EDF, ...)

> Design offices: 7 % (THALES, BUGATTI, ...)

> Chemical and medical industries: 6 % (AIR LIQUIDE, LE JOINT FRANÇAIS, IMPLANTS INDUSTRIE,...)

MAIN PROFESSIONS OPEN TO NEW GRADUATES

> **Research and development engineer** (57 %) : manages projects related to the creation of innovative products or develops sizing methods

> **Production engineer** (17 %) : defines and manages production methods

> Expert / Consultant engineer (9 %) : brings his/her skills to the client

> Quality / Security engineer (5 %) : improves the quality and the reliability of the products and the production methods.

PROJECTS LINKED TO COMPANIES OR LABORATORIES

3rd year: Innovation (100 h)
4th year: Mechanical design (200h)
5th year: Final-year project (300h)

LINKS WITH RESEARCH

The course lecturers carry out their research, which is internationally recognized, in conjunction with the CNRS (a national research organisation)

PROGRAM

The program offered combines scientific and technological teaching, with cross-disciplinary and soft skills modules (languages, economics, marketing, general management and project management) and practical experience acquired through projects and work placements (in industry, R&D departments, research laboratories...)

Concerning the scientific and technical aspects of the program, a strong emphasis is placed on understanding physical phenomena, as well as their modelling and digital simulation.

An area which is also dealt with is the interaction with related sciences, such as mechatronics, materials of the future, acoustics, etc.

Regarding project management, this area is integrated in the projects carried out in both 3rd and 4th years. These projects, which are based on innovation and design, can be carried out individually or within a group.

Students are offered a number of different modules and outlets in order to allow them to construct their own career plan. The final year is mainly devoted to modules within the chosen specialisation or more research-oriented taught modules for those who wish to continue their studies with a PhD. It is also possible to undertake the final year of studies abroad.

The department encourages the community and clubs within the school via initiatives such as the "4L Trophy" (humanitarian rally), the "trophée SIA" (development of innovative vehicles), the realisation of hybrid / electronic vehicles and the development of renewable energy systems.

Software Engineering and Statistics

Information systems
Software engineering
Networks and systems
Software architecture
Applied Mathematics
Probability
Statistics

Data analysis
Forecasting
Decision-making
Data mining
Marketing
Management
Financial engineering

OBJECTIVES

The department of software engineering and statistics trains multiskilled engineers in the processing of information, both in its statistical and computational forms, for use in various business professions. Given the cross-disciplinary nature of IT and statistics as disciplines, the areas of activity in which they appear are numerous, especially in the tertiary sector and the IT aspects of the secondary sector.

Apart from the teaching of scientific concepts and the mastery of the tools used, the courses taught place particular importance on the learning of methods (ie the qualities of rigor, curiosity and inventiveness in scientific approaches) and the development of the personality of the student (communication and listening skills, team work, autonomy...)

MAIN PROFESSIONS OPEN TO NEW GRADUATES

This is the only program that trains multi-skilled engineers in the areas of IT, statistics, economics and social sciences. This particularity means that an engineer with this profile is particularly sought after in the workplace. Our student engineers use their competences in multiple sectors of activity:

> as general IT specialists, given their mastery of computer systems and networks, information systems and data bases, software engineering, development of network services, project implementation...

> as engineers, given their well-developed knowledge of economics, management, finance and international affairs.

LINKS WITH RESEARCH

The program offered at Polytech'Lille in the area of software engineering and statistics allows the student engineer to participate in activities linked with research within major research organisations, including:

> Le laboratoire d'Informatique Fondamentale de Lille (LIFL), associated with the CNRS (national research body),

> Le laboratoire de probabilités et statistiques (Laboratoire Paul Painlevé), associated with the CNRS,

> Le Centre de recherche INRIA Lille Nord Europe (Institut National de Recherche en Informatique et en Automatique).

In most cases, the lecturers in this speciality carry out their research activities within these laboratories. The student engineers can thus undertake projects or placements in areas related to the specialities of these research laboratories.

PROGRAM

During the 3rd year (semesters 5 and 6), courses focus mainly on the teaching of fundamental subjects, based on the three main areas of specialisation of the department – IT, statistics and humanities. The specific classes offered to student engineers depend on the particular areas of previous study.

During semesters 7 and 8, the student engineer deepens his/her knowledge of statistics (statistical modelling, exploratory statistics...), IT (object-oriented programming, architectural software, data bases, advanced systems...) and project management (information system projects, project management...). During this year, greater emphasis is placed on projects carried out in groups.

During the 9th and 10th semesters, the student chooses a specialisation through the choice of optional courses. These include software engineering, data mining, statistical methods for marketing, the mathematics of new financial products, bio-statistics... The specialization is also determined through the choice of a final year project and placement.

SECTORS OF ACTIVITY AND COMPANIES

The omnipresent use of IT in management has been accompanied by the need to create tools that generate global representations of information, estimations and forecasts, in order to facilitate decision making. All areas of the tertiary sector are particularly concerned by these needs:

> SSII (Sociétés de Services en Ingénierie Informatique – computer engineering and maintenance companies) : SOPRA, ATOS, LOGICA
> Banking and Insurance: Société Générale, COFIDIS
> Major retail outlets: AUCHAN, DECATHLON ...
> Public administration
> Research: Institut National de Recherche en Informatique et en Automatique (INRIA) , CNRS, ...

Biological and Food Engineering

Biological engineering
Food engineering
Environment
Quality
Sustainable development

OBJECTIVES

The program in Biological and Food Engineering trains multiskilled engineers who work in different sectors of activity: food processing, biotechnology, the environment, cosmetics, personal hygiene products and retail. Using a combination of scientific and technical knowledge, as well as managerial competences, engineers from this program can call upon human, material and financial resources in order to meet the complex and exciting challenges specific to businesses in these different sectors.

PROGRAM

The program is designed around the following areas:

> products classified according to their chemical composition and various properties - physico-chemical, health, nutritional, sensory...
> processes and bio-processes used to obtain these products or to recover and enhance agri-resources and waste
> the tools necessary to control and optimize these processes, as well as the quality of the products,
> essential areas of the humanities and management which participate in the development strategy of a given company
> practical work experience (placements, projects) which allow the student engineer to assimilate the knowledge imparted and develop, in a team environment, his/her capacities in defining, organizing and realizing tasks .

The personalized path offered in the final year allows the student engineer to adapt the training offered to his/her career plan. Constant links with industry exist and manifest themselves through work placements, projects, visits to different companies, as well as the participation of industrialists in the program.

MAIN PROFESSIONS OPEN TO NEW GRADUATES

> Product development engineer: improves the quality of current products or creates new products, from the molecule level to the finished product.
> Production Engineer: organizes and supervises the different steps in the transformation of agri-resources.
> HSQE Engineer: defines and implements the HSQE policy of the company.
> Product manager: defines and implements the marketing plan. Participates in the elaboration of a growth strategy and the development of the company.

For all of these positions, taking into account issues related to sustainable development is a priority.

LINKS WITH RESEARCH

Numerous laboratories at Lille 1 University, associated with the CNRS or the INRA (national research bodies), can accommodate GB-IAAL student engineers for work placements:

> Laboratoire de Génétique et Évolution des Populations Végétales (GEPV),
> Laboratoire de Chimie Moléculaire et Formulation (CMF),
> Laboratoire de Procédés Biologiques, Génie Enzymatique et Microbien (ProBioGem)
> Laboratoire Stress Abiotique et Différentiation des végétaux cultivés (SADV),
> Laboratoire Unité de Glycobiologie Structurale et Fonctionnelle (UGSF).

SECTORS OF ACTIVITY AND COMPANIES

- Food processing:	60 %,
- Design offices:	17 %
- Chemical / healthcare industry:	12 %
- Retail:	6 %
- Other sectors:	5 %

Initial area of employment - Biological and food engineering:

- Research and Development:	19 %
- Production / Exploitation:	27 %
- Quality / Security / Environment:	30 %
- Sales / Brand director:	10 %
- Other professions:	14 %

Companies in which graduates work:
AUCHAN, BONDUELLE, COCA COLA, DANONE, GLAXOSMITHKLINE BOLOGICALS, HEINEKEN, LABORATOIRE JUVA SANTÉ, LECLERC, MASTERFOODS, MAC CAIN, NESTLÉ, QUICK FRANCE, TETRA PAK ...
and many small and medium enterprises.

Electrical and Computer Engineering

Embedded computing
Microelectronics
Control Engineering
Electrical engineering
Robotics
Renewable energy
Embedded systems
Communications

OBJECTIVES

This specialization is based on multidisciplinary teaching in the areas of general IT, industrial IT, micro-electronics, automatics and electrotechnics. Engineers from this program are thus multi-skilled engineers and able to change activity during the evolution of their careers to adjust to the imperatives of the market. The autonomy acquired by engineers from this program through project work (self-training) is a quality appreciated in industry.

Along with the scientific and technological knowledge and skills offered by the program, student engineers are also given the opportunity to acquire business-oriented knowledge in the areas of labor law, economics, and management and communications. They also study and use two foreign languages.

PROGRAM

The program is split into two parts:

> The first three semesters (S5, S6, S7) involve a common core for all students of the program where the main theme is embedded systems: planes, satellites, mobile phones, mobile robots, metros...

> The last 3 semesters (S8, S9, S10) are devoted to the student's specialization and involve two courses:

- Smart communicating systems: this course focuses on mobile phones and wireless networks,
- Autonomous embedded systems: this course focuses on mobile robots and their energy management.

LINKS WITH RESEARCH

Student engineers from this program are trained through research, allowing them to benefit from state-of-the-art knowledge. The lecturers of the « Electrical and Computer Engineering » department carry out their research projects within the laboratories of Lille 1 University, which are associated with the school in the following areas:

- Fundamental computing (LIFL)
- Microelectronics and nanotechnologies (IEMN)
- Control engineering, computing and signals (LAGIS)
- Electrotechnics and power electronics (LEEP)

MAIN PROFESSIONS OPEN TO NEW GRADUATES

Employment prospects are extremely varied and concern all sectors.

Some examples:

> Project manager: manages a project and ensures it is carried out properly.

> Design engineer: coordinates studies linked to the development of new products, where the formal specifications of these products are drawn up in a document that lays out their characteristics. She /he is responsible for realising the project, creating prototypes, as well as testing and controlling the different components.

> Research and development engineer: within the context of an innovation project, participates in the design and development of new products, services or procedures.

SECTORS OF ACTIVITY AND COMPANIES

Given the broad nature of this program, graduates join professions in all sectors of the economy. Engineers from the « Electrical and Computer Engineering » department can be found in:

> major companies in the transport sector (TOYOTA, PEUGEOT, RENAULT, ALSTOM, THALES, RAIL SIGNALING, AVIONICS, VALEO,...),

> major companies in the area of research, design and installation (SIEMENS, EDF, ALCATEL, SCHNEIDER ELECTRIC, SPIE, CEGELEC, STMICROELECTRONIQUE),

> IT services companies (CAP GEMINI, LOGICA, ATOS ORIGIN, SOPRA,...)

Measurement Systems and Applied Business

Measurement systems
Analog and digital electronics
Signal processing
Optics
Instrumental analytical chemistry
Marketing techniques
Management sciences

OBJECTIVES

Engineers trained by the department of Measurement Systems and Applied Business are specialists in measurement and analytical instruments in the areas of electronics, physics and chemistry. They benefit from a dual competence that is both technical and commercial, not only enabling them to detect, understand and analyse an instrumental need but also to market and/or develop appropriate solutions.

They are able to offer companies a global solution, combining both commercial and scientific aspects, by analysing the client's requirements in order to propose a multi-dimensional solution (through technical expertise, negotiation with the client, training programs and personally accompanying the client).

Given their multidisciplinary training, they are reactive and can constantly adapt to technological evolutions. Thanks to their varied competences, they can look forward to extremely favourable employment prospects.

PROGRAM

During the program, the student engineer will simultaneously follow:

> A broad scientific program of study (analog and digital electronics, telecommunication circuits and components, optics, lasers, chemistry...) enabling future engineers to rapidly adapt to new technologies and products.

> A program in economics and commerce, which goes beyond what is generally offered in traditional engineering schools, enabling the student engineer to acquire notions which are specific to a business program: economic and social environment, sales techniques, management control, finance, taxation, commercial law, international commerce, marketing, project management...

> The opportunity to acquire and practise communication techniques and to study two foreign languages (with a specialization in business English) completes the program, allowing the engineer to evolve and progress in international contexts.

MAIN PROFESSIONS OPEN TO NEW GRADUATES

Given the broad scientific program offered and the double competence acquired by engineers from this program, they tend to occupy the following positions:

- Business engineer
- Application engineer and R&D,
- Sales manager,
- Marketing manager.

LINKS WITH RESEARCH

The lecturers of this program carry out their research projects with the laboratories of Lille 1 University, which in turn are associated with the school:

> L'Institut d'Électronique, de Microélectronique et de Nanotechnologie (IEMN),
> Le Laboratoire de Spectrochimie Infrarouge et Raman (LASIR),
> L'Unité de Catalyse et de Chimie du Solide (UCCS)

PROJECTS WITH LINKS TO COMPANIES OR LABORATORIES

4th year: Group work on three activities: a technical study, a project that involves monitoring technical and economic developments, and a marketing project.

5th year: Technical project (final year project) in the areas of high value-added measurements.

Length: 2 months (January-February). The technical project can be carried out in the same company as the student's work placement (in this case, the work placement is more akin to a technical / commercial assignment which follows on from the project).

SECTORS OF ACTIVITY AND COMPANIES

Engineers trained by the department of Measurement Systems and Applied Business can be found in all sectors of activity which involve the production, sale and use of measurement and analytical instruments and/or high-level technology, specifically in the following areas:

> Electronic instrumentation (30 %),
> Spectroscopic and physico-chemical instrumentation (18 %)
> Telecommunications, networks and IT (14 %)
> Business and engineering services (15 %)
> Transport, research, health, energy, ... (30 %)

The companies for which they work:
AGILENT TECHNOLOGIES, AIR LIQUIDE, ALSTOM, ALTEN, ALTRAN, BRITISH TELECOM, BRUKER, CAP GEMINI, CEGELEC, EADS, EQUIPEMENTS SCIENTIFIQUES, HORIBA JOBIN YVON, IBM, INEO, SUEZ, LASER2000, MICROSOFT, NATIONAL INSTRUMENTS (LABVIEW), OLDHAM, PHILIPS, PSA, RENAULT, SCHNEIDER ELECTRIC, SIEMENS, THALES, UNILOG, VALEO, VEOLIA, VINCI, ...

Materials Science

Sustainable development
Quality
Polymers
Metal alloys
Semiconductors
Biomaterials

OBJECTIVES

The aim is to train executives and engineers who are capable of working in a business environment where there is a need for widely-used materials (polymers, metal alloys) or high added-value materials (composite materials, ceramics, biomaterials, micro-electronic materials).
An engineer trained in this program is capable of using scientific, technical and managerial resources in order to meet the specific needs of companies in the areas of quality, ageing, sustainability, recyclability and innovation, irrespective of the materials used.

SECTORS OF ACTIVITY AND COMPANIES

The range of sectors of activity and companies is extremely wide, both in the private and the public/para-public sectors: metallurgy, plastic and composite materials, semi-conductors and components, automobiles, aeronautics, ceramics, glass, electricity, nuclear energy, the biomedical sector...

Our partner companies:
EDF, DASSAULT, DÉCATHLON, ALTEN, VALEO, RENAULT, TOYOTA, MICHELIN, HUTCHINSON, AREVA, L'ORÉAL.

MAIN PROFESSIONS OPEN TO NEW GRADUATES

Engineers from this program use their competences in the following areas:

Quality / Security (15 %)
Production (15 %)
Research / Technical studies (65 %)
Other (5 %).

PROGRAM

The classes taught enable the student to acquire the fundamentals of the chemistry and physics of materials. These fundamentals are necessary in the understanding of phenomena at the microscopic level which have an influence on the usage properties of materials.

Solid managerial and linguistic competences are transmitted in class during the program in order to allow engineers from this program to find their place in the business world rapidly and efficiently.

The department trains students in numerous professions in the area of materials and offers students the opportunity to perfect their competences in their final year.

During the program, student engineers get to grips with the world of business through visits of industrial sites and interaction with the many professionals who intervene in the program.

LINKS WITH RESEARCH

The partner laboratories of the program are l'Institut d'Electronique, de Microélectronique et de Nanotechnologies (IEMN) as well as l'Unité Matériaux Et Transformations, two laboratories which are associated with the CNRS (a French national research body) and have a rich network of international collaborations.

Graduates from Polytech Lille can also continue their studies at PhD level in the following areas: Condensed matter, Microelectronics Organic and macromolecular chemistry.

More information about Polytech Lille's specialities :

www.polytech-lille.fr

Learning in a different way, to become an engineer

Continuing vocational training

Since its creation, Polytech Lille has awarded over 450 engineering degrees through its work- based learning programs in the form of lifelong learning .

Our school offers several routes into engineering training in the form of lifelong learning and the training is provided in partnership with professional associations. The courses last three years and are approved by the French accreditation board for engineering (CTI).

Lifelong learning gives a real opportunity for technicians to evolve professionally and become qualified engineers.

> Full time : All of the specializations taught at Polytech Lille are accessible through continuing education after 5 to 10 years of professional experience.
> Work-based learning : production system operations engineer
Objectives : train engineers, capable of covering all of the functions related to production.

Admission criteria : candidates must be qualified to bac + 2 level (2 years'undergraduate study) in a scientific or technical subject.
Candidates must have the agreement of their employers and pass the tests and interviews.

Status : Employees attending the institution as part of their employer's training plan have the status of professional trainees. This applies to employees on training leave or corporate training plans, individuals paying for their own training, job seekers, etc...

Work-based initial vocational training

Work-based initial vocational training requires an apprenticeship contract between the employer and the employee. The aim is to offer a professional qualification to young people leading to the "Diplôme d'ingénieur" (master of engineering).
It consists of sandwich course training that lasts 3 years and is based on work experience.
Admission criteria : Candidates must be under 26 years old and hold a 2-year scientific or technical higher education qualification.
They must also have a job offer as an apprentice within a company registered in France.

A facilitative approach to improving their command of the English language is a significant feature of the curriculum. Apprentices are encouraged to improve their command of the English language and a 4-week course in an English-speaking country is part of the curriculum.

Specialities available :
> Civil Engineering,
> Production.

Other specialities are in the process of being set up in software engineering and statistics and in computer and electrical engineering,

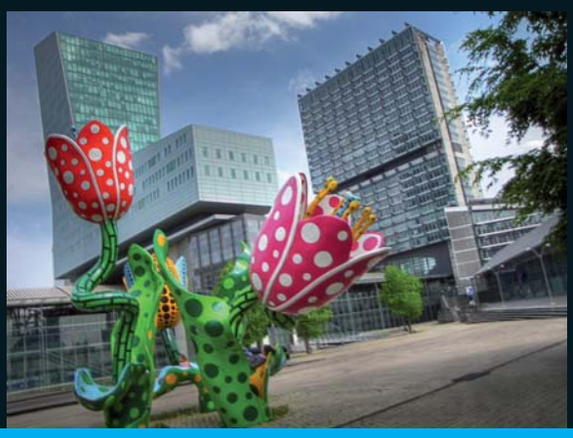
Advanced Master in Water Engineering

The advanced master in Water Engineering is a professionally-oriented post-graduate diploma accredited by the "Conference des Grandes Ecoles". It is aimed at engineers (with a background mainly in hydraulics, civil engineering or applied chemistry...) who wish to get a specialization in the area of water sciences.
Employment prospects : sustainable management of water.

POLYTECH®
LILLE

Lille, a city at the heart of Europe

The region "Nord - Pas-de-Calais" is known for the quality of its hospitality and its dynamic young population. Given its location, Lille, which is the 4th largest agglomeration in France, puts Europe within reach. It is also located one hour from the seaside towns of the North Sea.



A young metropolis

With 28% of its inhabitants under the age of 20, Lille is the town in France with the largest percentage of young people. With more than 100,000 students, it is also the metropolis in France with the largest student population.

A dynamic economy

The metropolis has always had a strong trading tradition. The agglomeration of Lille occupies a key strategic role in the following areas:

- Mass retail, with companies such as Auchan, Décathlon, Castorama, Leroy-Merlin...
- Mail order (Trois Suisses International, Redcats)
- Personal credit (Cofidis, Finaref)
- The automotive industry (Peugeot-PSA, Renault, Toyota)
- The food-processing industry (Bonduelle, Lesaffre, Leroux)

A tourist destination

Thanks to its dynamism and cultural diversity, Lille was chosen, in 2004, as Cultural Capital of Europe. Today, it is one of the most visited towns in France for a short break. After the success of Lille 2004, a new cultural event, Lille 3000, will take place every 2 years, based around the themes of modernity and the cultures of the world.