

## Ecole d'ingénieurs Louis de Broglie

### 1-Identity

Ecole Louis de Broglie was created in 1991 in Rennes, France. It is a “project-oriented” graduate polytechnic engineering school which educates/trains (over a five-year period) general practitioner engineers in 4 technical fields:

- Computer-Integrated Manufacturing
- Electronics,
- Data Processing and Computer Science
- Material Science

fields which are often associated with industrial products and processes. For example: *Planning Engineers*, for the conception, design and fine tuning of computer-integrated manufacturing for automobile engines and *Process Engineers*, for the manufacture of electronic components.

From the very beginning the school has been supported by major industrial groups such as: Alcatel, PSA Peugeot-Citroen, Thalès and Sogitec (subsidiary of the Dassault group). In addition, Louis de Broglie MSc programmes have been designed with the collaboration of area companies who have supported the school ever since 1991.

French Student Engineering Syllabus is a 5 year course with a screening process from top A-levels into “classes préparatoires”, a 2-year intensive undergraduate course in maths and physics and a competitive examination leading to Engineering Schools. Louis de Broglie’s Engineering syllabus is anchored in mathematics and fundamental science, as well as offers a balanced combination of courses in engineering techniques, management, general education and foreign languages and includes extended periods of industrial experience through internships.

### 2- Louis de Broglie’s academic programme

The engineering programme consists of three years of study after the 2-year preparatory cycle. During the 1st and 2d years students develop a sound foundation in maths, physics and computer science and a specific knowledge foundation in the 4 technical fields ; in the final year, students specialize in one of the 4 following fields : Computer-Integrated Manufacturing (applied to mechanics, robotics, leading current production processes), Electronics (applied to the field of detection and telecommunications) Data Processing and Computer Science ( applied to real-time systems and numerical simulation) Material Science (applied to new materials as ceramics, compounds materials, polymers, optic fibers and new thin layer disposition techniques...) In the 3rd year, the curriculum is divided into two semesters, consisting of 50% lecture and 50% in an industry connected to the given option (engineering trainee/internship: 20 weeks minimum)

At Louis de Broglie, an engineer’s training is “project oriented” with special focus placed upon understanding the importance of project management and accountability. During the student’s course of study, they work closely with various manufacturers on “actual industrial projects” which allow them to put into practice the research methods and project management techniques acquired in their theory classes. These methods include: Triz, patents, TIC, etc... Completed student “Industrial Projects” often take the form of developments or improvements in a product or a procedure, the establishment, organization or reorganization of a manufacturing workshop, production control studies, Total Quality Management (quality, safety, costs...) studies, the development, test, validation of software and data-processing systems security, the design and simulation of electronic devices/mechanisms, performance evaluations of telecommunications systems, study of manufacturing materials and their set-up procedures, cutting-edge technology and knowledge management, benchmarking, data based comparative studies, patents.

In addition, the school provides its students with a variety complementary of skills, which include technical, industrial, operational, functional and international competencies.

### 3- Internships

In addition to the theoretical courses, students have to carry out one four-week "blue-collar" internship in the first year and in the second year a 3-month internship abroad to gain practical experience working in industry. Summer trainee/internships examples : factory worker traineeship, manufacturing technician traineeship, customer/client service traineeship. In the third year, several long trainee/internships possibilities are offered :

- engineering trainee/internship: 20 weeks minimum;
- engineering trainee/internship "young engineer" 12 months in a company between the 2nd and the 3rd year of engineering studies.
- overseas assignment for a company with the goal of: market research, technology transfer or a study of distribution systems.

With regards to our current national situation we have a number of agreements and partnerships with several Higher Education Institutions, and Master Degree exchanges with University of Rennes 1, INSA, Supelec in various fields of research.

**4- Industrial Work/Study Apprenticeships** : in 2007 Louis de Broglie received approval to offer student engineering apprenticeships in the following two fields: Industrial Patents and Industrial Purchasing. This program allows students to work part-time in an industrial firm while pursuing their engineering studies here at our school.

### 5- International relations

On the international side we have agreements with University College of London (UK), Fachhochschule of Amberg Weiden (Germany), Facoltà di Ingegneria (Ferrara (Italy), San Luis Potosi University (Mexico), Dundalk Institute of Technology (Ireland). Since its creation, Louis de Broglie has continued to expand its international focus/activities which include, but are not limited to the following: (mandatory international work-study projects, long-term international traineeships (6-12 months) and international student exchanges each of these which fall within the framework of the educational training programs.

### 6- Research Facilities at Louis de Broglie

Louis de Broglie is eligible for innovative research contracts. Two laboratories enable developing Louis de Broglie activities in applied research which are directly linked to industry and the business world.

- Computer-Integrated Manufacturing and Material Science and Industrial Engineering laboratory (Problem solving, Quality Control, Process & Product Innovation, TRIZ, patenting, new structural materials and material resistance and properties for industry, painting, welding, composites, biomaterials...
- Electronics, Computing and Telecommunications (study of digital modulation schemes in the digital radio & TV context, Multiple input and multiple output scheme, TNT, DAB, DRM).

Louis de Broglie is part of three national competitiveness poles : EMC2 (Luxury Automotive Industry Pole ) Composites Project (Airbus), Image and Networks Pole.

Louis de Broglie which is situated on the Ker Lann campus, is at the center of a technological skills network for Rennes and all of the Western Region of France. In addition, the school benefits from an environment of strong technological added value.

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