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, ...