COMPUTER SCIENCE AND NETWORKS
> Internet of things
> Cyber-security
> Big Data
This curriculum relies on theoretical teaching as well as lab sessions and projects that focus on practical knowledge. Initiative is crucial to solve these problems which are created to be as close as possible to those encountered in the industry and research field. The department collaborates with its industrial partners and research laboratories to define and offer a program which matches current professional needs.

**4TH YEAR PROGRAM:**

The 4th year is composed of a common core and one of two options: computer system engineering or communication system engineering.

The common core covers object oriented design conception and programming, internet and security, concurrent system modelling and real time as well as transverse topics as project management, languages, communication, business management and quality control.

The elective topics available are:

- **Computer System Engineering:** fundamental computer science, data and information system modelling, smart systems, computer architecture, etc.
- **Communication System Engineering:** wireless networks, Wide Area Network Interconnection, telecommunication systems, smart objects, Internet of Things.

**5TH YEAR PROGRAM:**

The 5th year offers a variety of options to choose from. It is possible to specialize in a specific field or to broaden your knowledge by exploring new areas. This year heavily revolves around group projects which focus on the improvement of technical, organizational, and linguistic skills.

Available curricula:

- **Distributed Systems and Big Data:** that focuses on designing distributed systems which rely on cloud computing and large scale data analysis
- **Innovative Smart Systems (Internet of Things):** A multidisciplinary program built around the design and development of innovative smart objects. It covers all of the product’s aspects, from the components through wireless communication to its impact on society. Important companies like Intel, ST Microelectronics, Thales or Orange support the department on the Internet of Things (IoT) topic by donating equipment and helping to organize events like IoT Day and Hackathon.
- **Critical Embedded Systems:** focuses on embedded software system development. An additional module covers control systems or service robotics.
- **CyberSécurité:** a joint program with another engineering school in Toulouse (ENSEEIHT) which aims to improve cyber security skills.

A set of semester long transversal programs enable students study in the fields of Energy or Risk Engineering.
Since 2006, the department of Electrical and Computer Engineering co-operates with the leading company CISCO. This collaboration gave birth to the CISCO Networking Academy hosted at INSA Toulouse.

Interested students can therefore attend free industrial courses covering networking, security, and other computer science and communication technologies in addition to their main classes. Passing these courses leads to an international CISCO CCNA certification. Teachers offer tutoring to help with this additional content.

POSSIBLE PARALLEL PROGRAMS WITH:

- **Toulouse School of Management**: joint master’s degree in “Innovation Management” or “Finance” delivered in partnership by INSA and TSM.
- **Toulouse Business School**: complementary “Management in a High-tech environment” diploma based on a mixed curriculum.

PROGRAMMING COMPETITIONS

- **La Nuit de l’Info** (December): National event gathering student teams trying to solve various problems given by industry professionals. Toulouse’s version took place at INSA Toulouse in 2017.
- **Cod’INS** (March): Inter-INSA programming competition. After the qualifying competitions, each INSA sends 5 students to the final to represent their home school.

INTERNATIONAL RELATIONS

Exchanges include academic semesters as well as industry or laboratory internships.

- More than 30 students take part in academic exchanges every year (Europe, America, Asia, Australia…).
- The exchanges are well developed with the UK, the USA, Sweden, Germany and Japan which are all partners of choice for thesis exchanges.
- The department welcomes about 30 foreign students every year into the 4th and 5th year (master level).
- Foreign students having completed a Bachelor of Engineering can apply to enter the 4th year as an exchange student or to complete INSA’s diploma.
JOB OPPORTUNITIES

Computer science and telecommunication engineers can access multiple positions in a large variety of fields. Our curriculum can lead to the following positions: R&D Engineer (needs analysis, specification, design, testing, quality control, performance appraisal), Software Production & Maintenance Engineer, Software Architect, Network Administrator, Project Manager...

MAIN SECTORS OF ACTIVITY

- Computer science and information services 42%
- Information and technology industry 22%
- Telecommunication 18%
- Automotive, aeronautic, naval and railway industry 16%
- Consulting, design, engineering companies 14%
- Metallurgy 4%
- Finance and insurance 14%
- Editing, audio-visual and broadcast 14%
- Others 6%

PLACE OF WORK

- Occitanie 51%
- Île-de-France 36%
- Other regions 4%
- Abroad 9%

BUSINESS SIZE

- + 5000 EMPLOYEES Large Company
- 250 > 4999 EMPLOYEES Medium Sized Company
- 20 > 249 EMPLOYEES Small Company
- 1 > 19 EMPLOYEES Very Small Company

27% 29% 32% 12%

THE DEPARTMENT’S PARTNERS SPONSORING THE FONDATION INSA TOULOUSE:

INDUSTRIAL PARTNERS

One of INSA Toulouse’s priorities is establishing active and sustainable partnerships with large companies and SME’s, especially in the Occitanie region.

Creating synergy between the university and industrials, adding professional input into the curriculum and investing into innovative projects for students enables INSA Toulouse and its partners to face the rising competitiveness of the job market as well as regional, national, and international demand.

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