

### International Master in Telecommunications and Networks

#### Objectives

After following our core courses in telecommunications and networks in the 1st year of master degree, the student makes a choice in 2nd year a major between « High Rate Technologies » and « Professional/ Business Networks ».

Core courses concern deterministic and statistic mathematical tools, digital signal processing, information theory, architectures and transmissions in telecommunications networks, mobile and wireless networks, broadband networks technologies, multimedia technologies, array processing.

The "High Rate Telecommunications" specialization concerns technologies which are often differentiated by the physical support (cable, optical fiber, radio communications with short, middle or long range), by computer science protocols of a transmission system, by the type of signal processing.... This specialization proposes to center the training program on the technological basis of transmissions, propagation and networks. Advanced courses concern high rate transmission technologies. It allows to develop a general competence to deal with the rapid evolution of networks. Students will be able to appreciate advantages and drawbacks of different technical offers. They will be able to develop materials and/or to discuss with specialists.

The "Professional Networks" specialization aims at training project managers having a transversal view on both network technologies offered by computer science specialists and technological technologies offered by operators and supply manufacturers. The aim is to imagine an optimized hardware architecture for the users and provide coherent services with the used technologies. The specialization proposes to center the training program on the mastery of professional/business network technologies: equipment architectures and high rate/broadband transmissions, network protocols, data base access and exchange of multimedia data, network engineering, distributed systems, network security. The students will be able to conceive equipment and professional networks. They will be able to specify and compare propositions, to manage installations, maintenance and evolutions of networks.

#### Organization

Admitted students will be trained at Conservatoire national des arts et métiers – le Cnam, located at the center of Paris. Created in 1794, during the French Revolution on the location of a medieval monastery, le Cnam is a unique French institution of long-standing and deep scientific tradition.

The 1st year, Master 1, is composed of 670 hours of courses, including technical fundamental courses for the master program, French course, English course and the courses necessary for engineering career in professional world. The division of the core courses is as follows:

- Mathematics, Signal processing and Transmissions (300 h)
- Wire and wireless networks (180h)
- Languages: French and English (110h)
- Enterprise organization, Engineering Career (80h)

The 2nd year, Master 2 is composed of 350 hours of courses, 40 h of personal project and between 5 to 6 months of professional mission in a company.

If the numbers of students are allowed, student can choose between 2 majors « High Rate Technologies » and « Professional/ Business Networks ». If the numbers of students are not allowed, a mixed program between those two majors will be recommended. Upon master graduation, students will have opportunities to follow their PhD programs with Cnam.

## Internship/ Missions

This master requires an internship in a company from 5 to 6 months during the 2nd semester of the 2nd year. Ideally, this internship will be conducted in a company having an international development. The internship integrates also the development objective.

## Project/ Report

This master integrates one month project in the 2nd year. The 5-6 month internship/ project in a company in the 2nd semester of 2nd year will lead to a report and a defense before a jury.

## Mode of evaluation

The master diploma will be given to students if they pass all the exams, evaluation and the defense.

## Competences

The skills objectives concern the three following transversal functions:

The control and management of telecommunication projects and more precisely: the organization of network development or network exploitation to satisfy the needs of enterprise, the realization of the network's projects specifications, the analysis of the principal offers from network manufacturers and operators, the coordination of suppliers and subcontractors interventions and the verification of the networks functioning.

The exploitation of networks: the organization of maintenance, the traffics follow-up and the networks evolution preparation, the commercial offers follow-up of suppliers and operators, the networks availability and reliability follow-up and the setting up of corrective actions as part of a quality approach.

Depending on the chosen specialization during M2 (High Rate Telecommunications or Professional Networks), the holder of the international master will be able:

To choose the transmission means related to a request, analyze and compare technical offers or telecommunication networks, develop equipment containing signal processors, use the high rate transmission techniques, implement digital processing algorithms, communicate in French and English.

To choose transmission means related to a request, analyze and compare telecommunication networks, develop protocols and architectures of professional networks, analyze and to develop secure protocols, files transfer, distributed structures, use internet for specific applications, access to distant data bases, and manage a network.

Student' skills extend beyond its specialization:

Student is autonomous on its intervention area. He/ She fits into an organization, animate its and makes it develop. Student can identify expertise and know-how and can use its human network. He/ She contributes to the improving tools, methods and is aware of the technological evolutions

Student can work in an international context, speaks at least three languages. He/ She is conscious of safety and economical intelligence questions, has an international experience and is conscious of inter-cultural challenges in professional environment.

**Code: MRI0200A**

**Professor: Pascal CHEVALIER**

## 120 credits

*The official title mention on the diploma:* International Master in Sciences and Technologies, mention Information, specialized in Telecommunications and Networks.

## Our strengths

- Know-how in lifelong education
- Strong anchorage with industries and their needs
- Vision towards the future of global industries and innovative technologies
- 52 qualified professors on a wide range of expertise
- Multidisciplinary and innovative Engineer's training programs
- High-quality applied researches
- 4 recognized laboratories : Cedric (Telecommunications and automatics), Esycom (Electronics, Communication System and Microsystem), LNM (Metrology), and Satie (Electro-technics)

## Contact

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