

International master degree in engineering in the area of systems and software Architecture and Integration.

Further your studies in a French engineering school, join our one year training program taught in English language and prepare **Master Degree in Engineering in the area of systems and software Architecture and Integration.**

Recognized by the French Ministry of Higher Education and Research, the diploma is awarded upon successful completion of a specialized program of study and opens the way to a professional career in an intercultural context or to further education towards the doctoral thesis.

TRAINING LOCATION : Admitted students will be trained at the engineering school of Conservatoire National des Arts et Métiers – *le cnam*¹, located at the centre 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. Nowadays, thanks to its integrated network, *le Cnam* spreads higher adult education and life-long training to 100 000 students in France and abroad.

Le Cnam holds 25 research teams and offers 36 doctoral programs in a variety of disciplines strongly oriented toward technological research.

Le Cnam engineering school² - *Eicnam* - delivers each year 1,000 engineering degrees in 24 specialized fields related to industrial science and information technology.



We teach everyone everywhere

THE TEACHING TEAM : Teachers work for their research activities in the Cedric laboratory³ - Institute for Research in Computer Sciences and Telecommunications. Research topics include:

- Reliable systems;
- Interactive media and mobility;
- Information and decision systems engineering;
- Combinatorial optimisation;
- Advanced databases;

ADMISSION AND PROGRAM OVERVIEW : After successful completing their first year master degree program in their home country, students from partner universities may get additional experience and a double diploma by complementing their engineering studies for one year in Paris, France.

After one semester classes, they will do an internship in a company to work as part of a project team.

A contribution to a research project conducted in collaboration with their home university may, if required, complete the student's training in France.

CONTACTS (INFORMATION AND APPLICATION) :

- Professor Nicolas Trèves, (nicolas.treves@cnam.fr), adjunct professor, researcher at Cedric in charge of the master program.
- Julie Marbot, (julie.marbot_amelineau@cnam.fr +33 1 58 80 86 97), International program development at *le Cnam* engineering school

FIND OUT MORE:

- (1) <http://the.cnam.eu/>
- (2) <http://ecole-ingenieur.cnam.fr/>
- (3) www.cedric.cnam.fr

PROFESSIONAL OPPORTUNITIES :

The industry of information technology and communication (ICT) has become the first global industry. Given the stock of software components available today, the value added is now mainly a result of an assembly process called integration in ICT technical language.

To address the issue of systems complexity, the choice of components and their integration shall comply with best architectural practices. Indeed, in a highly evolving context, architecture must guarantee functional

sustainability of systems while allowing the substitution of components or equipment according to technological market opportunities.

The architect integrator ensures genuine interoperability in complex distributed systems and his work plays a crucial role in the reliability/safety of systems by allowing test procedures and simulation. When he is in charge of software intensive systems as part of industrial projects, the architect integrator guarantees good technical achievement and quality of solutions while complying with deadlines and minimizing risks.

MASTER'S SYLLABUS : 800 hours

October to March

Projects engineering: students will be trained in project management techniques. The course presents various methods and technologies to ensure quality of service: project management and cost evaluation with functions point method, agility, testing, formal verification with model checking techniques.

Systems architecture and integration: the course addresses the "system" dimension related to IT implementation (includes: architectural aspects, design decisions, lifecycle process, prime contractor/client/suppliers relations). Fundamentals of system engineering for the control of architectural design of large software systems predominant.

EJB architecture: modern programming systems and languages shelter the concepts and constraints that are developed and respected in architecture. Such is the case, as to take an example, for JAVA language and the software components of its environment. Based on EJB, this course demonstrates basic principles of construction and validation of systems and particularly distributed systems.

Engineers at work: to widen one's horizon through conferences of skilled engineers sharing their experience. Scientific, societal, environmental, legal issues in a globalizing world that one faces as part of his professional responsibilities. Project management issues and project culture in companies.

Model and representation of the organization: get prepared to analyze and participate to a process of organizational management. Acquire skills to take an active part in companies and evolve within them or other organizations in the economic system.

French as a Foreign Language: develop the five skills of the Common European Framework of Reference for Languages – CEFRL: speaking in a conversation and continuously, writing, listening and reading. Emphasis is also placed on the development of intercultural competence.

Supervised personal project: undertake a professional and/or research project to prepare for business and/or research internship.

From April on

Internship: a professional mission in a company will be supervised by a double-tutoring (*le Cnam* professor and company engineer): as a team member, students will exert their skills and acquire new ones, learn methods and know-how specific to the project culture. Students who wish to acquire research experience may undertake afterwards a second internship within the department research team (under conditions).

Defence of master's thesis: the internship's based report will be defended before a jury composed of professors (both from *le Cnam* and partner university) and tutor from the company.