

Specialty Knowledge Integration in Mechanical Production

2 tracks are available :

Design and Manufacturing (DM) in Paris Campus

Advanced Production Systems (APS) in Lille Campus

Advantages

Several double degrees have been signed with partner universities:

- Royal Institute of Technology (KTH-Stockholm- Sweden)
- Linköping University (LiU-Sweden)
- University of Teheran (Iran)

Students interested in getting a double degree have to spend the first year of the master in one of the partner university.

Pedagogical objectives

- Formalising the knowledge based on a scientific approach about design, innovation, production planning and manufacturing systems.
The KIMP program provides training for further PhD studies, research activities or positions in industry as an expert with having an international experience by working in an international multi-cultural context.
- **Specific Advanced Production Systems specialization** ([See the video](#))
 - Defining emergent needs and associated constraints in tomorrow's industry taking automotive industry as an example
 - Developing agile systems engineering concepts based on new technologies to reach the requirements of high added value products and services.
 - Designing agile systems with a view to rapid and adaptive production
 - Controlling these new systems of production
- **Specific Design and Manufacturing specialization**
 - Designing product and process: Innovation, conceptual design, ecodesign, detail design, geometric modeling, structure analysis, integrated design and manufacturing, cost estimation and management
 - Developing knowledge engineering and integration: data management, knowledge management, collaborative design, capitalisation of the knowledge, digital mock-up and virtual environments

Program

It consists of one semester of courses and one semester of Master Thesis at full time in order to carry out the master thesis in a lab (industry or university).

The first semester is split in two quarters, one quarter of core courses and one quarter of specialized courses.

4 Core courses

- Methods, models and tools for integration : manufacturing process, product modelling, process planning, manufacturing resources
- Supply Chain Management
- Risk management and decision science
- French language and culture (Foreign language for French speakers)

4 Design and Manufacturing track specialized courses (DM track)

- Innovation and product design methodology
- Knowledge Integration in conceptual design
- Geometrical product representation for computer aided design and manufacturing
- Digital mock-up and virtual environments

4 Advanced Production System track specialized courses (APS track)

- Innovation in Mechatronics
- Advanced Design of Agile Manufacturing Systems
- Marketing and Management
- Digital Manufacturing and Production

Career Prospects

Careers in industry: research and development department, design department, quality department, production department in manufacturing industries

Positions: manager in all aforementioned sectors

PhD in Mechanical engineering

Careers in academia: researcher, professor

Industrial partners

CEA, Dassault Aviation, CETIM, EADS, EDF, Fanuc, Geomnia, PSA, Renault, SNCF, Thales, Valeo...

Academic partners

Royal Institute of Technology (KTH-Stockholm- Sweden), Linkoping University (LiU-Sweden), University of Teheran (Iran)

Application

Application form: ask KIMP_Manager@ensam.eu to send you a form.

Application deadline: Beginning of June

Selection commission: July

Start of the year: Beginning of October, start of the Master thesis: Mid of February

Location

1st semester: Paris for DM track and Lille for APS track

2nd semester: in France or abroad

Keywords

Design and manufacturing engineering, agile systems, production systems, CAD, CAM, knowledge integration, mechanical engineering, risk analysis, virtual reality, product geometry representation, PLM, machine tool geometry, digital mock-up