Mechanical Engineering

Design
Innovation
Sizing
Modelling
Optimisation
Sustainable development

OBJECTIVES

The department trains multi-skilled mechanical engineers capable of leading or participating in projects based on the design, optimisation and realisation of innovative products, facilities and procedures. Training in this area combines mastery of scientific and technological knowledge with learning about state of the art digital simulation tools. The aim is to cultivate the future engineersengineers' creativity and encourage them to resolve concrete problems, while taking into account the individual and his/her environment, within a project team.

SECTORS OF ACTIVITY AND COMPANIES

> Aeronautical, sea and automobile transport: 34 %
(AIRBUS, EADS, SNECMA, ALSTOM, BOMBARDIER, PSA, RENAULT, BOSCH, VALEO, ...),

> Energy: 30 % (AREVA, MAIA, EOLIS, JEUMONT, ...),

> Research: 9 % (ONERA, EDF, ...)

> Design offices: 7 % (THALES, BUGATTI, ...)

> Chemical and medical industries: 6 %
(AIR LIQUIDE, LE JOINT FRANÇAIS, IMPLANTS INDUSTRIE,...)

MAIN PROFESSIONS OPEN TO NEW GRADUATES

> **Research and development engineer** (57 %) : manages projects related to the creation of innovative products or develops sizing methods

> **Production engineer** (17 %) :
defines and manages production methods

> Expert / Consultant engineer (9 %) : brings his/her skills to the client

> Quality / Security engineer (5 %) : improves the quality and the reliability of the products and the production methods.

PROJECTS LINKED TO COMPANIES OR LABORATORIES

3rd year: Innovation (100 h)
4th year: Mechanical design (200h)
5th year: Final-year project (300h)

LINKS WITH RESEARCH

The course lecturers carry out their research, which is internationally recognized, in conjunction with the CNRS (a national research organisation)

PROGRAM

The program offered combines scientific and technological teaching, with cross-disciplinary and soft skills modules (languages, economics, marketing, general management and project management) and practical experience acquired through projects and work placements (in industry, R&D departments, research laboratories...)

Concerning the scientific and technical aspects of the program, a strong emphasis is placed on understanding physical phenomena, as well as their modelling and digital simulation.

An area which is also dealt with is the interaction with related sciences, such as mechatronics, materials of the future, acoustics, etc.

Regarding project management, this area is integrated in the projects carried out in both 3rd and 4th years. These projects, which are based on innovation and design, can be carried out individually or within a group.

Students are offered a number of different modules and outlets in order to allow them to construct their own career plan. The final year is mainly devoted to modules within the chosen specialisation or more research-oriented taught modules for those who wish to continue their studies with a PhD. It is also possible to undertake the final year of studies abroad.

The department encourages the community and clubs within the school via initiatives such as the "4L Trophy" (humanitarian rally), the "trophée SIA" (development of innovative vehicles), the realisation of hybrid / electronic vehicles and the development of renewable energy systems.