



MECHANICAL ENGINEERING MANUFACTURING PROCESSES

Our students will become mechanical engineers with a solid background in mechanical science and design. They also acquire valuable communication and computational skills so as to be able to meet the requirements in various professional areas (aeronautical, naval, automotive industries, mechanics and machine tools, food-processing companies, nuclear, medical, energy fields, house appliances, sports and leisure, transports, building and public works..)

The holder of a DUT of Mechanical and Production Engineering is able to participate in the various stages of Production Engineering

- Analysing, - Modelling, - Designing, - Mechanizing,- Organizing and communicating, - Producing, - Validating.

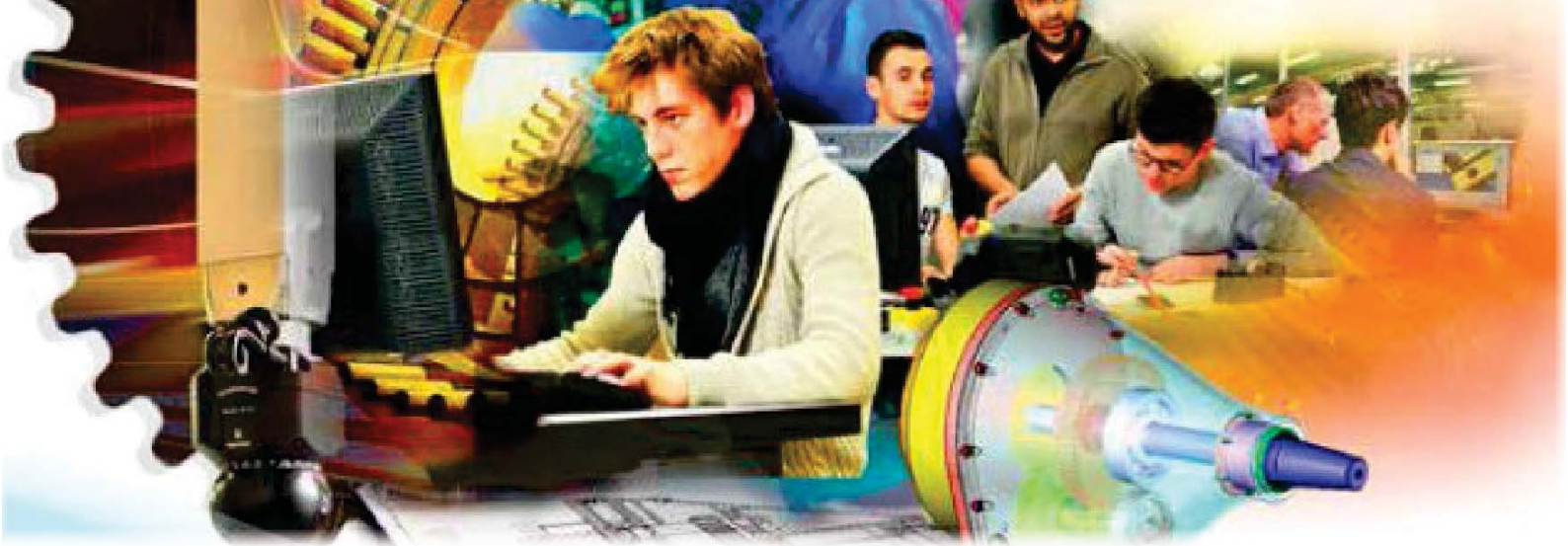
CONTENTS OF OUR COURSE

Design : mechanics (mechanical system isolation, forces and torques, determination of main contact resistance, kinematic of contact, static, kinematic and dynamic of rigid bodies and systems, energy methods and FEA), dimensioning of structures (Material Resistance hypothesis, simple stresses, elasticity – combined stress) , material science (material properties, material behavior, material selection, study of metallic and non-metallic materials, binary diagrams, materials selection, thermal treatments, mechanical properties), Thermodynamics (Calorimetry, Law equation of state, Heat first law, Internal energy, Ideal gas law, Enthalpy, Heat transfer (conduction, convection, radiation)), Fluid Mechanics (Fluid statics, Bernoulli equation, Viscous flows, Turbulence). **637,5 hrs 36 ECTS**

Industrialization and management: production (product manufacturing processes, CNC machines) , methods manufacturing processes, cost-quality requirements, digital chain context), metrology (measurements and control , 3-D metrology and surface finishes, non-destructive control), EEA (Electricity, Electronics and Automation: Electric motorization, Information processing , Automated systems integration), Management (Project management, production management, Quality procedure, Maintenance). **577,5 hrs 34 ECTS**

Science and communication skills: Mathematics (Study of functions, Polynomials , Taylor's formula, Statistics, integral calculation, differential equations, matrix calculation, linear systems, multivariate functions, double and triple integrals, parametric equations of a curve), Communication, Foreign languages (Professional English : 120h), Company management, Computer science, Professional integration preparation. **585 hrs 38 ECTS**

10-week work placement: in the last semester, in France or abroad, in an industry or research lab (12 ECTS)



AFTER THE IUT

Our graduates can specialize or join multi-skilled teams in industrial divisions and departments:

- Tests, R&D (research and development),
- Research and tooling departments,
- Methods and industrialization,
- Maintenance and supervision,
- Production organization and management,
- Production,
- Quality assurance and control,
- Purchasing, sales and after-sales...

Most of our students decide to pursue their studies either in Engineering schools (Arts et Métiers, INSA, UTC, UTB, UTT, ENI) or in vocational Bachelors and Masters of Engineering. Our department gives them the opportunity to graduate in 2 Vocational Bachelors of Engineering :

- LP ECoSyM (Eco-conception of mechanical systems)
- LP AQSE (Quality, Environment, Health and Safety)

TO CONTACT US

Pierre Michelutti, head of department,

pierre.michelutti@univ-rennes1.fr

Françoise Grall, international relations coordinator,

francoise.forgeard-grignon@univ-rennes1.fr

Institut Universitaire de Technologie Rennes - Dpt GMP

BP 90422 - 35704 Rennes Cedex 7

Tél. 33 (0)2 23 23 41 00

iutren-gmp@listes.univ-rennes1.fr



UNIVERSITÉ DE
RENNES 1