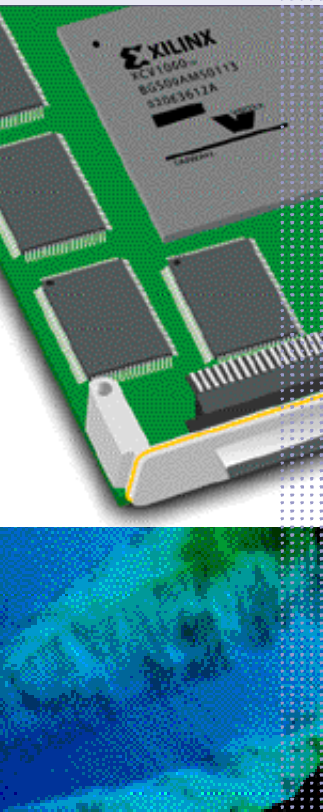


3rd year:

a "job-oriented" year
to confirm the professional project and
extend knowledge in the chosen option



1st year: general engineering training



ELECTRONICS - INFORMATION TECHNOLOGIES MAJORS

Electronic systems (data recognition and processing systems)

Core curriculum: navigational systems, system engineering, optics-optonics

choice of 2 advanced options:

- airborne instrumentation or subsea instrumentation
- operational electronics systems or methods and tools for environmental monitoring

IT systems (Informatics and automation for embedded systems)

Navigational systems, system engineering, industrial opening and forward-studies, non-linear systems, software design and validation techniques, informatics technology for embedded systems, distributed information systems

MARINE ENVIRONMENT MAJOR

Hydrography - cartography

Geodesics, spatial geodesics, methods and environmental monitoring tools (MOME), cartography, underwater instrumentation, maritime law, navigation systems, hydrography. FIG-OHI module: geodesic measurements

Total: 550 to 580 h

2nd SEMESTRE

Final year project (4-6 months in a company)

This internship provides a true transition from studies to career. It should enable students to conduct a real engineering project, on a real-life industrial problem, enjoying a certain degree of freedom of action and the resources of an industrial firm or research institution.

TO LEARN MORE : Daniel Ménez, Dean of studies

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Tél. 02 98 34 87 54- Fax 02 98 34 87 90
Site Web : www.ensieta.fr - e-mail : recrute@ensieta.fr

Course of study

140 h ←

Engineering sciences

Numerical analysis, probabilities, statistical method, mathematics for physics, optimization, signal theory, propagation

200 h ←

Mechanics

General mechanics, materials, continuum mechanics, deformable-solid mechanics, experimental solid mechanics, mechanical expertise, mechanical design, fluid mechanics

180 h ←

Information technology - Electronics

Information systems, algorithmic language, electronic design, electronic systems, metrology - sensors, digital electronics

235 h ←

Human sciences and foreign languages for engineers

Communications, general economics, marketing, lecture cycle, English, 2nd foreign language (Spanish, German, Italian, Russian, Chinese), physical education and sports

50 h ←

Methods and construction/production

CAD-CAM for electronic boards - Data processing design - constructive training period in one of these fields (mechanics, electronics, data processing or IT)

Total: 850 h

30 h ←

Optional activities

Cultural openness activities



2nd year:

progressive specialization

by field of competence,
a personalized program in modules

3rd year:

a "job-oriented" year
to confirm the professional project and
extend knowledge in the chosen option

280 h ←

A CHOICE OF
3 BRANCHES:



350 h

100 h ←

150 h ←

General engineering training

Physical education and sports, foreign languages, law, finance, accounting, corporate knowledge and management, communications

1 "Mechanical systems engineering" branch

1st semester: structure dynamics, finite elements, thermics, metallic materials, CAD, mechanic design, hydraulics

2nd semester: hyperstatic structures, power transfer, analytical mechanics, fluid mechanics, structure dynamics, plastic and composite materials, metallic material failure

2 "Electronic systems engineering" branch

1st semester: electronic functions for signal processing, digital electronics, analog signal processing, experimental techniques, ID digital signal processing, system control using state equations, networks, software engineering, channel physics

2nd semester: experimental techniques, optics-optronics, digital system control, microprocessor systems, C language, modeling

3 "Marine environment" branch

1st semester: hydrography, geophysical fluid dynamics, descriptive oceanography, meteorology, sedimentology, experimental techniques, ID digital signal processing, swell and internal waves, channel physics

2nd semester: tides, data inversion, physical oceanography, oceanographic observations, marine geophysics, C language

Industrial project

Module-based program

Six 25-hour modules enabling each student to go further in his/her center of interest on the following themes:

- enterprise and management (marketing, starting a business, etc.)
- economics and human sciences (geopolitics, history of science, etc.)
- mathematics, information technology and general physics (internet technology, operational research, etc.)
- specialization in mechanics or electronics (thermodynamics and energetics, computer-integrated manufacturing, laser physics, microelectronics, etc.)

Total (not including internship): 850 h

Summer internship (compulsory):

technical internship as an assistant engineer (4 to 12 weeks)

I^{ER} SEMESTRE

130 h ←

420 h
à 450 h ←

General engineering training

Physical education and sports, English, 2nd foreign languages, management and company management

A choice of 6 options (with systems applications projects in each major)

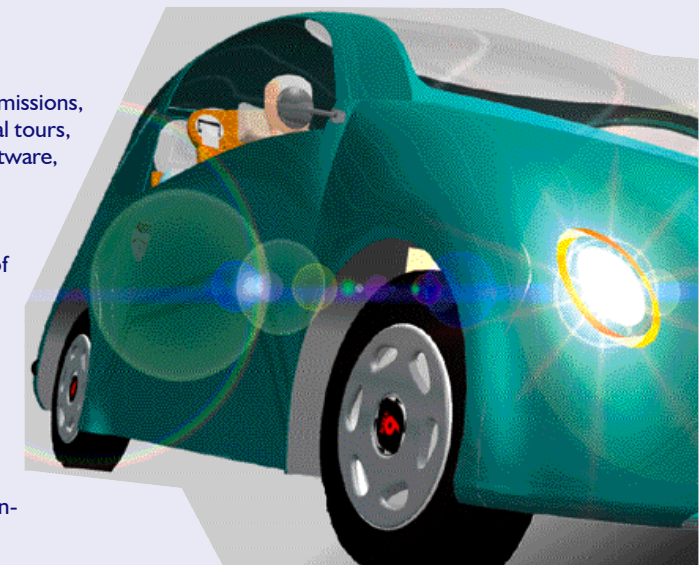
MECHANICS MAJORS

Vehicle design and modeling

Core curriculum: vehicle architecture, transmissions, vehicle dynamics, power-unit engines, industrial tours, high tech materials, introduction to Abaqus software, design office calculation and materials
Choice of 1 major:

- Computation and modeling: limit analysis of structures, non-linearity and finite elements, choice of elements, behavioral laws, explicit dynamic computation, finite volumes, structural sizing

- Vehicle architecture: suspension-road handling combinations, braking systems, exhaust systems, engines and vehicles for civil engineering, industrial design, human environment, electrical systems architecture



Naval architecture and offshore engineering

Overview of maritime environment, overview of offshore environment, ship stability, fundamentals of naval structures, vessel loop and project stages, equipping offshore platforms, design of offshore platforms, subsea engineering and FPSO design,
CAD/CAM in naval architecture, design offices for vessels or offshore structures, structural computations and regulatory approach, maritime inspection, designing small vessels, designing large vessels, propulsion system, seakeeping, resistance, propulsion, manoeuvrability, designing bottom to surface links, sail boat design

Energetic materials engineering

Shock waves and detonation, combustion, propulsion, energetic materials, pyrotechnic systems, regulations concerning energetic materials, industrial safety, vulnerability, protection, operational safety