



2ND AND 3RD YEAR SPECIALISATION

ENGINEERING SCIENCE FOR HOUSING AND URBAN ENVIRONMENT

Acquire strong scientific skills relating to the physical architecture of cities and housing. Two options are offered within the specialisation: housing (building performance and thermal technology, building materials, air treatment) and urban engineering (energy at the city scale, urban hydrology and atmosphere, noise and waste management, transportation engineering).



COURSE CONTENT

CORE COURSES

- > Building engineering
- > Ecology, city and territories
- > Urban issues
- > Geographics information systems and Databases
- > Acoustics, light and solar radiation
- > Applied thermodynamics for urban engineering
- > Urban hydrology and atmosphere
- > BIM Initiation
- > Project 1
- > Project 2
- > Internship

HOUSING OPTION:

- > Building technology
- > Thermal performance of buildings
- > Air treatment and conditioning
- > Materials for building comfort

URBAN ENGINEERING OPTION:

- > Energy at the city scale
- > Applied urban hydrology and atmosphere
- > Urban planning and transportation
- > Management of noise and polluted soils



EXAMPLES OF PREVIOUS PROJECTS

- > Indicators for Eco-districts
- > Drinking water network
- > Regional energy efficiency
- > Energy consumption forecast (Nantes Métropole)
- > Energy study of a village (Saint-Fiacre sur Maine)
- > Urban mobility diagram
- > Car-free city
- > Château des Sœurs: studies and recommendations for thermal renovation and water use
- > Structural calculation of a hotel in Lebanon
- > Comparative study of wood vs. concrete house
- > Thermal performance of buildings: case study
- > Design of a bioclimatic childcare centre (architecture competition)
- > Sustainable house
- > Implementation of E+ C- regulations (Bouygues)

INDUSTRY SECTORS

- > Engineering consultancy
- > Inspection and certification bodies
- > Technical centres
- > Local and regional authorities
- > Specialist Institutes
- > Large groups for urban development and service

CAREER PROSPECTS

- > Engineer in thermal technology and energy efficiency of buildings
- > Engineering consultant in urban engineering
- > Construction site engineer (new build / renovation)
- > Consulting engineer in sustainable development, energy-building, environmental performance of projects, etc.
- > Urban development and innovations project manager

TEACHING STAFF

HEAD OF SPECIALISATION:

Isabelle Calmet

LECTURERS:

Isabelle Calmet, Patrice Cartraud, David Chalet, Jean-François Hétet, Jean-Yves Martin, Alain Maiboom

EXTERNAL SPEAKERS:

Bouygues
BRGM
CEREMA
Ensan
ESO Nantes
Saunier Duval
SARETEC
Univ. G. Eiffel (Nantes)
WSP

EXAMPLES OF PREVIOUS INTERNSHIPS

- > Construction site (Bouygues Construction) to renovate the Santé prison in Paris
- > Engineer in High Environmental Quality Building Design (CPOS)
- > Consultant engineer in building energy renovation (POUGET Consultants)
- > Management of urban development projects (ARTELIA)
- > RE 2020 and low carbon construction (Bouygues Bâtiment)
- > Energy design of the hospital center of Tours (AIA Ingénierie)
- > Methodology to support designers in reducing the urban heat island effect (OASIIS)
- > Environmental impact assessment of urban projects (Stratec)
- > Design of an urban transport project (INGEROP Conseil & Ingénierie)
- > Infrastructure for the renovation of a tramway line (SEMITAN)
- > Thinking buildings as materials banks in Sweden (Anthesis Sweden AB)
- > 3D modeling of infrastructure elements and definition of BIM solutions on the 3Dexperience platform (Dassault Systèmes)
- > Deployment of digital tools for operating water networks (VEOLIA Eau)
- > Application of Lean Management to a major rehabilitation project (Bouygues Construction)



graduate programme | Ingénieur grande école

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École Centrale de Nantes, Direction de la communication, 2023