UNIVERSITÉ DE NANTES

POLYTECH NANTES
Graduate school of engineering of the university of Nantes

# Master in Thermal Sciences and Energy

## Keywords

- Heat transfer
- Energy sciences
- Fluid Mechanics

## Courses aims

This Master is specialized in Heat Transfer and Energy Sciences. Through this program, students will acquire the scientific and technological knowledge, as well as the practical experience, to understand and contribute to innovative Research and Development processes.

## Program

■ 2nd year - Semester 3

- Fundamentals of Heat Transfer (Physics of Heat Transfer, Engineering Heat Transfer, Advanced courses in Heat Transfer)
- Experimental and Numerical Methods (Experimental Methods, Numerical Methods, Inverse Problems)
- Fluid Mechanics (Fundamentals, Turbulence and Turbulent Flow, Hydrodynamic Instability and Dynamic Systems)
- Heat Transfer In Solids and Heterogeneous Media (Heat Transfer at Interfaces, Heat Transfer during Composite Injection, Heat Transfer with Phase Change)

■ Semester 4

This semester is dedicated to the development of a high-level research project, supervised by professors from research laboratories or experts from industry, to which students will be integrated.

## Skills and career opportunities

This program leads students on to a wide range of R&D functions in many domains where energy management is involved. This can be the case in Energy Production, Transport Industry (aeronautics, automobiles), Building Industry and in many business sectors as: Energy, Mechanics, Environment and sustainable Development...

The master's environment should also facilitate future involvement in international PhD top level programs (with limited tuition fees at Polytech Nantes).

## Hosting research labs

■ *Laboratoire de Thermocinétique de Nantes* (UMR CNRS) has a strong thermal identity, recognized as such at national and international level, as well as the industrial fabric. Research activities are related to the understanding and analysis of heat transfer at different scales, in order controlling space and time to increase transfers. They are conducted using methodologies for the identification, control, and fine metrologies application. .

The laboratory is organized around two main topics:

- Transfers in flows and complex fluids
- Transfers in materials and interfaces.

■ Laboratoire Procédés-Matériaux-Instrumentation, ENSAM Angers

■ GREThi - Atomic Energy Center, Grenoble

Materials Sciences & Engineering
> Engineering

# Admission

## Admission requirements

Students should have earned a degree or diploma in the following scientific or technical fields: Applied Physics, Mechanical Engineering, Chemical Engineering, generally equivalent to four years of studies in higher education (Bachelor degree at least, Benke in China) Chinese students should be qualified for applying for a Chinese master degree (chinese national master entrance examination).

The foreign University will recommend students for the year in France. A committee of French Professors will select the students who are qualified for the program, after examination of the student's application files and interview.

## Language requirements

A reasonnable knowledge (oral and written) of English is required
An introduction to French language and culture are provided

## Costs

- Tuition fees: €6,500 (medical insurance included), to be paid in Euros
- Housing: €2,500
- Food and incidentals: €2,000
- Other expenses: €1000

Total: €12,000

## Scholarships and funding

For information regarding grants and scholarships, we recommend you to contact the French Embassy in your country, or your local Campus France agency.

According to your country of residence and your particular situation, different possibilities of financing your studies in France may be available: government grants, funding granted by international organizations and NGOs, private fellowships...

During the master program, there will be a 5-month internship, in a laboratory or in a company. Each student will be paid around €420 per month and receive at least €2000 for this internship.

www.univ-nantes.fr > academic programs

# Practical information

## Location

Nantes (600,000 inhab.) is located close to the Atlantic Ocean and is regularly rated as one of the most pleasant French cities to live in. Thanks to its beautiful parks, efficient public transport and other policies for substainable development, Nantes has been awarded the statut of European Green Capital.

Courses are located in Nantes, on La Chantrerie Campus which hosts 5 Grandes Ecoles, with over 2,000 students, two university restaurants, a technology library, as well as about 30 businesses at Atlanpole that deal in advanced technology.

Travelling to Nantes from Paris, either from Paris CDG Airport or from city center, is easy and direct with the fast train (TGV).

## Lodging

Accommodation is available on the university campus, but most students seek accommodation in town. Rent may vary between €200 and €300 per month (allow for a deposit: usually 1 month rent). Expect to pay for insurance for any accommodation, as well as the housing tax for accommodation in town.

The Housing market is saturated by September. It is highly recommended to seek accommodation in June or July.

## Academic calendar

- Duration of studies: 1 year
- Courses start in September and end in June

## Details and contacts

- Polytech Nantes

Site de la Chantrerie
rue Christian Pauc - CS 50609
44306 NANTES cedex 3 - France

*Polytech Nantes is the Graduate School of Engineering of the University of Nantes. it is accredited by the Commission des Titres d'Ingénieur (CTI), the French institution which awards engineering degrees.*

- Information

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