

STUDY SEMESTER

Wood science and sustainable management



**IN NANTES,
FRANCE**



**100% TAUGHT
IN ENGLISH**



**5 MONTH
PROGRAMME**



**MASTER 1 LEVEL
EQUIVALENT**

PRESENTATION

This semester will provide students from around the world, with a diverse and multidisciplinary approach about wood science and sustainable management. It will enable participants to contribute to a more sustainable world through the use of engineering tools. The course is delivered entirely in English.

Learning by doing is one of the key elements of this semester: workshops, projects and applied research. The student is at the heart of the learning process by experimenting alone, or in a group, under the supervision of professors and experts.

This semester is offered from February to June every year and successful completion provides 30 ECTS.

**ÉCOLE
SUPÉRIEURE
DU BOIS**
Sciences et
technologies
des matériaux
biosourcés

**makers
by nature**

COURSES - 30 ECTS

Sustainable management - 1 ECTS

The course aims at providing a critical look at organizational analysis, considering various criteria: strategy, CSR strategy, organizational structure, governance, organizational culture and the organization's environment.

At the end of this course you will be able to:

- Identify and characterize different forms of organizational structure
- Describe and analyse organizational culture
- Analyse the organizational environment

Circular economy: implementation - strategy, offer, design - 3 ECTS

The course aims to highlight the link between operational and strategic issues in a circular economy.

At the end of this course you will be able to:

- Identify strategic issues to be solved in relation to environmental, social and economic issues
- Describe the environmental, social and economic impacts of the solutions chosen
- Argue a project's performance with regard to the circular economy

Finite elements - 2 ECTS

Students have to run a project on ANSYS modelling software.

Lectures in small group of 15 students on mechanical structures will be provided.

Makers PlayLab - 2 ECTS

Experience ESB Makers Playlab and its "learning by doing" approach under the supervision of its Manager in order to:

- Discover the environment of a Fablab
- Develop skills for prototyping, modelling, programming, 3D printing, laser cutting...
- Conduct document research for technical communication
- Create parts and/or an application

Wood based Composite II - 2 ECTS

To provide an understanding of the environmental, economic and technological drivers behind the manufacture and use of commercial wood composites.

At the end of the course you will be able to:

- Collect and summarise experimental data
- Apply and adapt standard test methods to composites materials
- Measure physical and mechanical properties of composites
- Optimise a bio-based composite for a particular end-use

Wood sciences (Anatomy, chemistry, physics...) - 2 ECTS

The course aims to deepen participant understanding of wood science.

At the end of this course you will be able to:

- Communicate orally to effectively transfer information
- Measure a property in a concrete way
- Determine the physical and chemical characteristics of materials
- Understand water-to-wood interactions
- Apply testing standards and protocols
- Use mathematical formulas wisely
- Identify the characteristics of each physical phenomenon

Biorefinery - 2 ECTS

The aim of this course is to understand the value of agro and bio-based products beyond their traditional channels (agriculture/food and forest/wood) and to anticipate the evolution of uses and added values.

At the end of this course you will be able to:

- Qualify a bioresource
- Describe a biorefinery facility
- Explain the concept of bio-based platform molecules

Project DEFI - 3 ECTS

The DEFI allows you to realize an idea that is close to your heart, or to respond to the request of a sponsor (company, which can be the host company of an apprentice, association, individual...), while experimenting with project management and developing your ability to work independently.

At the end of this project you will have developed your ability in:

- Defining and conducting a project
- Managing a project team
- Communicating orally to effectively transfer information
- Communicate your ideas through diagrams and models
- Develop your social outlook

Research and Technology Transfer project - 3 ECTS

The main purpose of this exercise is to find a solution to a problem, using the main stages of research: defining the problem to be solved, collect and analyse appropriate information (state of the art), design and conduct experiments to supplement the information already collected, analyse data, draw conclusions from these data and convey the findings to others.

Internship or research project - 8 ECTS

The Professional Experience in a company or lab allows to:

- Implement the knowledge and know-how learned during the training
- Discover a professional environment and the world of work
- Lead a mission in a professional situation

French as a Foreign Language - 1 ECTS

Learning the basics in French, in order to cope with everyday life in France

English advanced - 1 ECTS

Write and speak an appropriate English in a business context

LEARNING OUTCOMES

- Describe the different functions of a forest
- Use different processes to transform wood into products
- Select appropriate wood products by their use, supply chain, and recyclability
- Optimize a product or process using a suitable method or tool
- Analyse and implement a sustainable development strategy in a company
- Determine physical and chemical material characteristics
- Understand wood-water interactions
- Analyse results with a scientific approach
- Apply norms and research standards
- Manage a project and a team (communication, management skills)
- Write and speak English confidently in a business context
- Learn the basics in French, in order to cope with everyday life in France

BENEFITS FOR STUDENTS

- The International Office and volunteer students will look after you from your arrival for all administrative and practical aspects (accommodation, health, leisure...).
- Graduate engineering school expertise on wood science, research and development, circular economy.
- Learning by doing approach.
- Multi-disciplinary team and classes.
- Nice green and peaceful environment (Nantes: Green European capital city).
- Very high tech and sustainable building environment.

ORGANISATION

- A 5 month programme
- From February to June.
- 100% taught in english
- Master 2 level equivalent
- Courses with French students

APPLICATION

Applicants are required to:

- Provide evidence of having completed an undergraduate degree in wood sciences, forestry or materials science.
- Have a certificate demonstrating their proficiency in English (at least level B1).

BUDGET

Fees are applicable only for non exchange students (no agreement with a partner institution).

One semester study is charged €3,375 for the February 2022 intake. Tuition fees include courses and all additional welcome and support from international service.

Transport and daily expenses are additional (average cost in Nantes about 700€ a month).

KEY ACTORS

Pascal Vinot

Academic Dean: in charge of all academic subjects linked with the programme

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Antoine Lebeau

International Relations Coordinator: in charge of promotion, management and development of international activities

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Alexandra Chataigner

International student assistant: takes care of the student with all administrative and practical aspects (accommodation, health, visa matters...)

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Tutors

Voluntary students

CONTACT PERSON

For any further information, please contact:

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