GRENOBLE INP UGA Pagora

GRADUATE SCHOOL OF ENGINEERING IN PAPER, PRINT MEDIA AND BIOMATERIALS

Ecole publique d'ingénieurs

- admission sur titres -

statut « apprenti » ou « étudiant »

12/11/2025

A top rated state-owned campus

8,300
students

800
PhD students

2,860
graduates each year

40
laboratories

8
schools

TOP 100
engineering / technology
materials science

A graduate school of engineering full of particularities

200
students

3
Degrees:
1 engineering program
+ 2 masters

240+
partner companies

9 → 18
months in a company

3
Facilities
school + CFA + laboratory

€38,500
gross/year: average salary

The only graduate school
3 x ISO certified

A 120 years old story

Production

Recycling

Fibres

Paper, Board

XXIst century version

Processes

Waste processing

Recycling

Production

Biorefinery

Products and Materials

Vegetal biomass

Biobased products

Fibres

Paper Board

Nonwovens

Packaging

Composites

Biobased materials

Printed images, objects

Printed electronics

Management

Energy

Environment

Ecodesign

Quality

Innovation

Project

Areas of expertise

Green chemistry and innovative biobased materials

Valorizing plant biomass

Contributing to **sustainable development** through the responsible use of **primary resources** (forestry) and **secondary resources** (recycled materials, waste, by-products)

Developing biobased materials

Innovative research and development of complex biobased products (biopolymers, bioproducts)

Areas of expertise

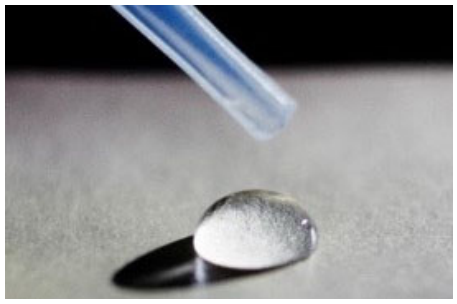
Paper, packaging and functional papers

Converting cellulose, manufacturing and recycling materials

Supporting industrial sectors in the **use of plant fiber** and the production of **biobased and recyclable products**

Creating alternative packagings

Eco-designing materials and **functionalizing** surfaces



Areas of expertise

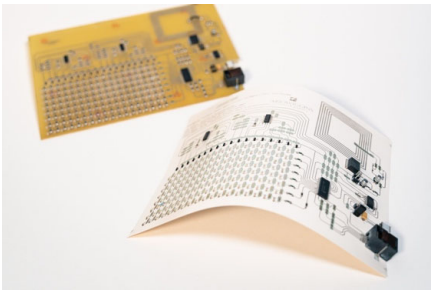
Printing sectors

Print media

Developing the **print media of the future**: digital printing, cross-media, augmented reality, 3D printing

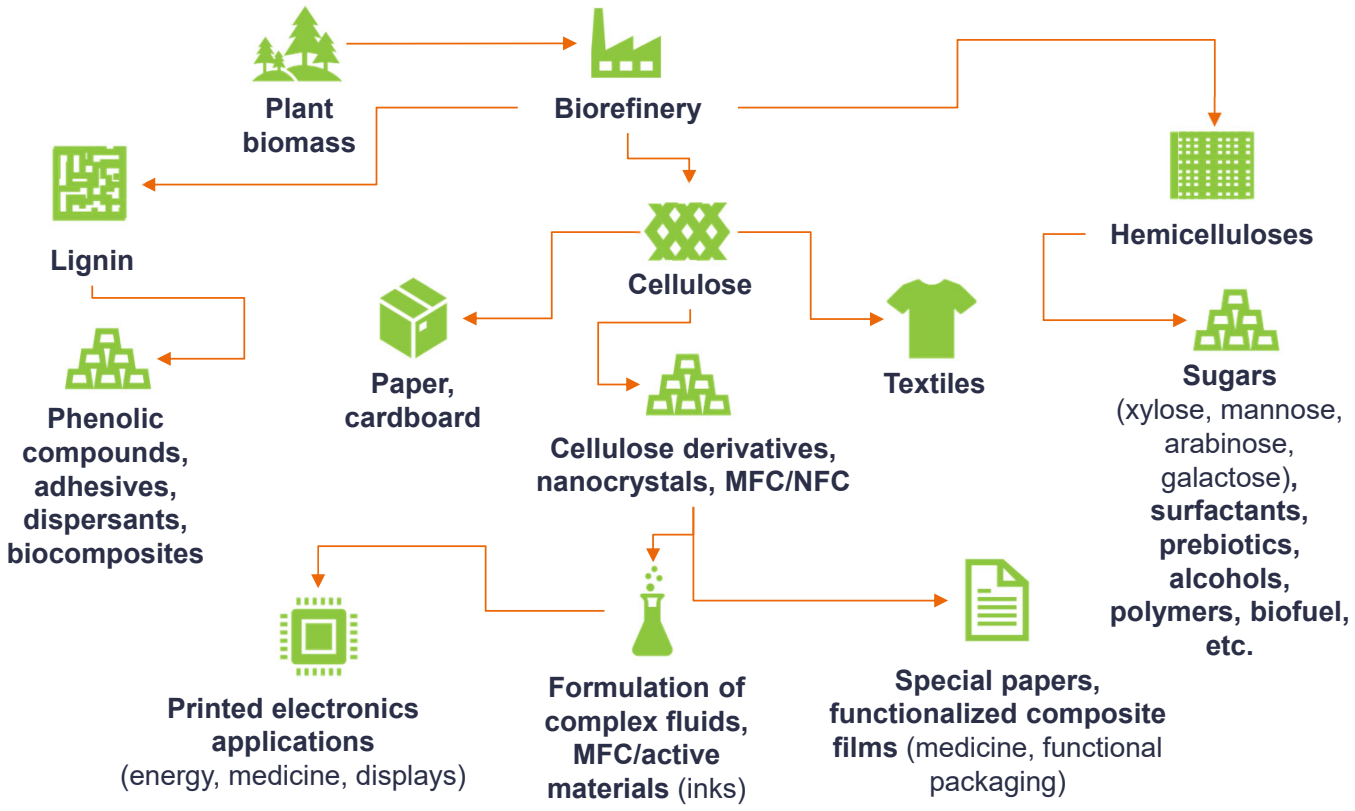
Printed electronics

Developing **printing processes for electronics**: **additive technology** for flexible, lightweight, functional and recyclable products



A research lab in the heart of the school

A wide range of scientific applications



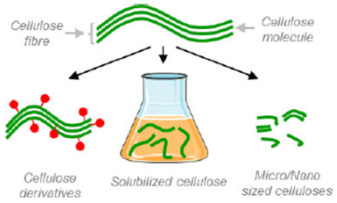
A research unit within
3 teams

BIOCHIP

Biorefinery: chemistry and eco-processes

Processes for cellulose, hemicellulose and lignin (biorefinery and bioproducts)

Characterization of the ligno-cellulosic constituents of plant biomass



MATBIO

Multi-scale biobased materials

Building blocks derived from plant biomass

Manufacturing processes for polymers, composites and fibrous materials

FUNPRINT

Surface functionalization through printing processes

Formulation and characterization of complex fluids and inks

Printing processes for the development of functional components and systems

A research unit within

3 examples

Niusha SAFARI
Ph.D. thesis (2023-2026)
LGP2 (C. Chirat)
TIMC (B. Toussaint; D. Hannani)

Study the Nature of Wood Oligosaccharides for their Prebiotic effects

Étude de l'effet de la nature des oligosaccharides d'hémicelluloses de bois sur leurs propriétés prébiotiques

Biochip

Context

The establishment of biorefineries is crucial for enabling integrated production of food, feed, chemicals, materials, fuels, and energy in the future.

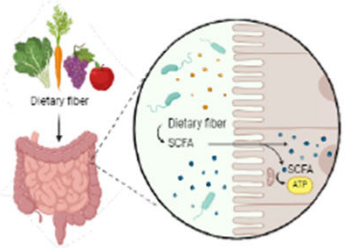
Hemicelullose valorization

valorizing hemicellulose plays a crucial role in maximizing:

- resource utilization
- diversifying product streams
- reducing waste
- promoting sustainability in biomass processing industries.

Prebiotics

Due to their structural resemblance to common dietary fibers, wood-based oligosaccharides exhibit prebiotic characteristics, providing advantageous effects on the host's health by selectively influencing the composition of the gut microbiota[1].



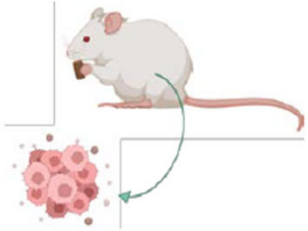
Funded by:
UGA Collège Doctoral ED I-MEP²
Grenoble INP UGA

Objectives

- **Purification and characterization of the Oligosaccharide solution's fractions with the possibility of having an immunomodulatory effect**

- **Finding the most relevant microbial consortium and system to initially screen the fractions**

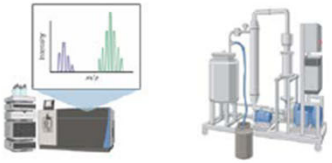
- **Study the promising fractions *in vivo*, to evaluate the immunomodulatory effect of the fractions**



Methods

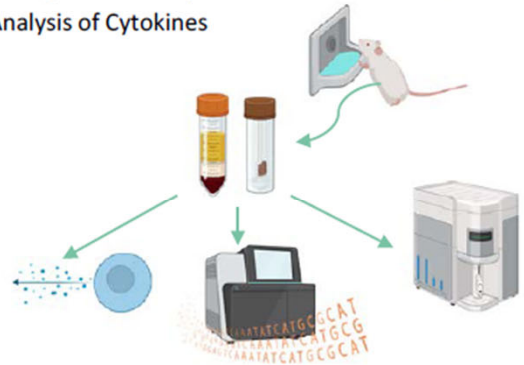
Oligosaccharides purification and characetization

- Ultrafiltrartion
- HPLC
- FTIR
- MALDI ToF



Prebiotic tests including *in vivo* and *in vitro*

- SCFA analysis
- Flow Cytometry
- Metagenomic study of caecal microbiota
- Analysis of Cytokines



Graphics created with BioRender.com

1.La Rosa, et al.(2019). Wood-derived dietary fibers promote beneficial human gut microbiota. MSphere, 4(1), 10-1128.

MatBio

Chloé PARISI
Ph.D. thesis (2023-2026)
LGP2 (J.BRAS)
SIMAP (E.BLANQUET)
CILKOA (F.MERCIER)

ALD optimization for cellulosic substrate

Optimisation du traitement ALD (Atomic Layer Deposition) sur support cellulosique barrière et recyclable dans le domaine de l'emballage

Context

New legislation on plastic packaging

Reduce Reuse Recycle

- **44%** of the global plastics for packaging

And only **10%** recycled in 2021…

- Single Use Plastics Directive (2019)
- Packaging and Packaging Waste Regulation (2018)

Green alternative

Cellulosic materials

Most abundant biopolymer on earth

Recyclable, Biodegradable & Renewable

x But *Permeable, Low barrier & Hydrophilic*

CILKOA

Created in June 2022 in Grenoble

Develop an innovative hydrophobic barrier treatment for cellulose substrates with few nanometers of ceramic

Funded by: RÉPUBLIQUE FRANÇAISE — ADEME

In collaboration with cilkoa — The barrier solution for paper packaging

Objectives

High barrier & mechanical properties

The requirements for a good packaging

3 applications

Flexible (High-performance & Green)

Water barrier molded cellulose

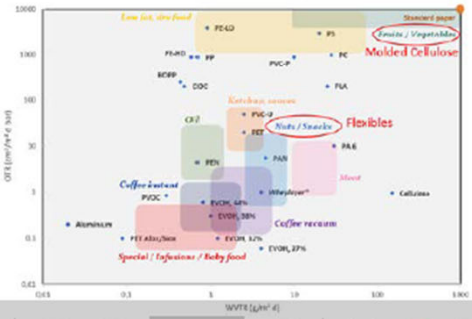
Foam

Depending on the application:

→ *Water, Water Vapor, Oxygen & Grease Barriers*

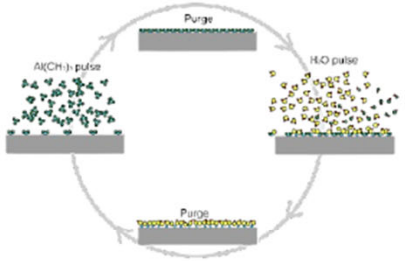
→ *Hydrophobic*

→ *Good wet and dry mechanical and thermal properties*



Methods

Atomic Layer Deposition



Protection strategy & New technologies

Ecoconception

Recyclability

Durability

Life Cycle Assessment

Laura BERNARD
Ph.D. thesis (2023-2026)
LGP2 (A.Denneulin; N. Reverdy)
CEA-Leti DTIS (P. Mailley; P. Marcoux)

Printed electronics for early detection of bloodstream infections

Electronique imprimée pour le dépistage rapide des infections sanguines

FunPrint

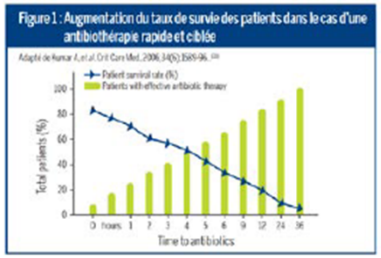
Context

Bloodstream infections

Statistics

- 48,9 million cases 2017
- 11 million deaths in 2017 (20% of worldwide deaths)

Antibiotic resistance



- Increase in antibiotic resistance, leading to the leading cause of death by 2050.
- The longer is the time of effective medication, the lower the survival rate.

This project follows T. Babin's thesis work.

Funded by: anr® cea leti CHU Grenoble Alpes

In collaboration with LGP2

Objectives

Industrialization of the manufacturing process

Handmade to a standardized product

Requirements :

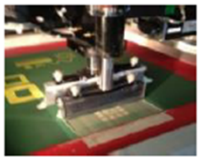
- **Autoclave-proof** (130°C/18 min/2 bar)
- **Rigid**, resistant to breakage during septum perforation
- **Biocompatible**
- **Electrically insulating**
- **Electrochemical sensor**, based on T.Babin device

Perspectives: Connected smart bottle to improve patient care

Methods

Printing processes

More precise printing. Control of film homogeneity and quantity of inks applied.



Perforation study

Testing different needle geometries using 3D printing to verify optimum shape before injection molding

Materials Characterization

Study of materials which would fit the best to the requirement.

A research unit within

Access to LGP2 YearBook

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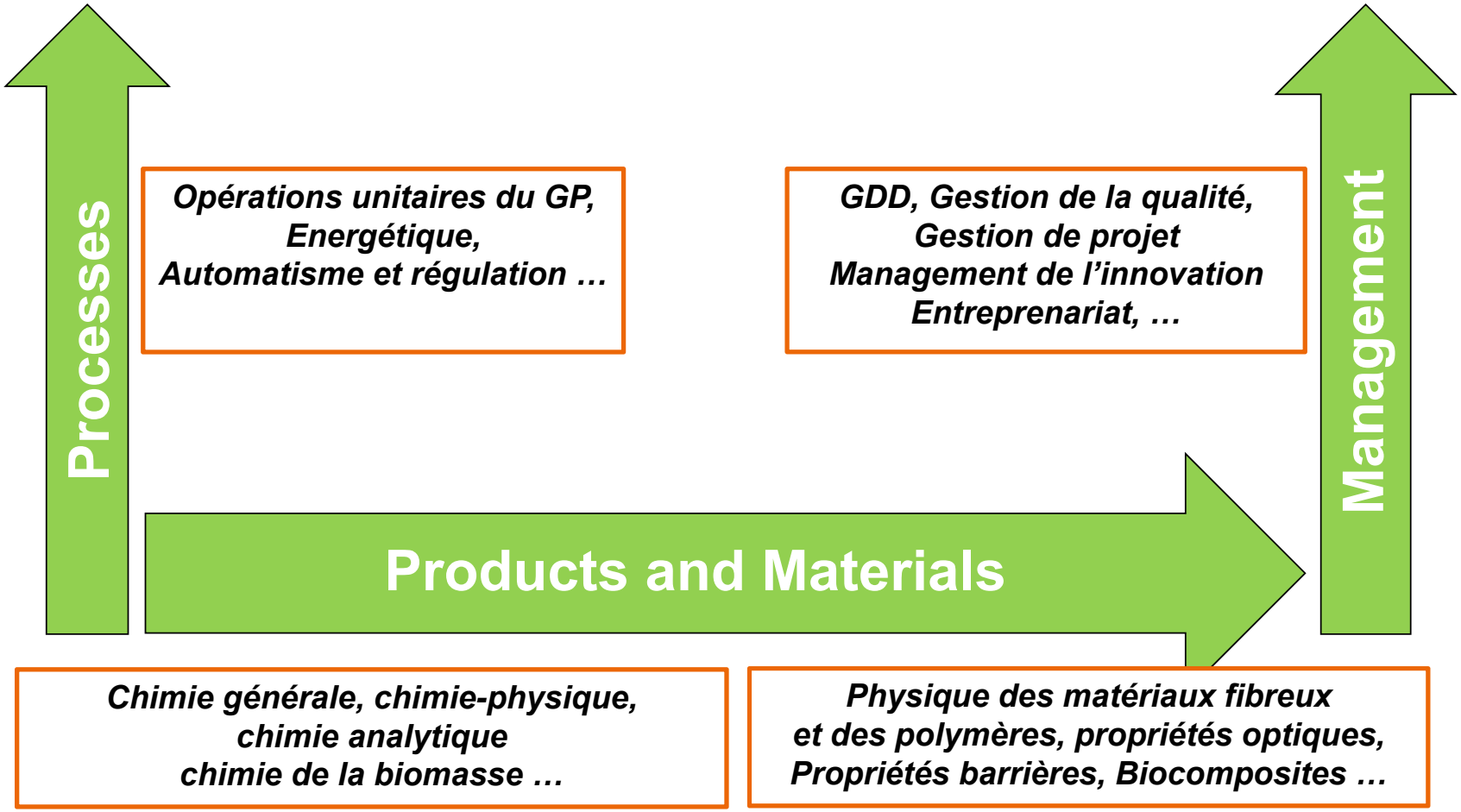
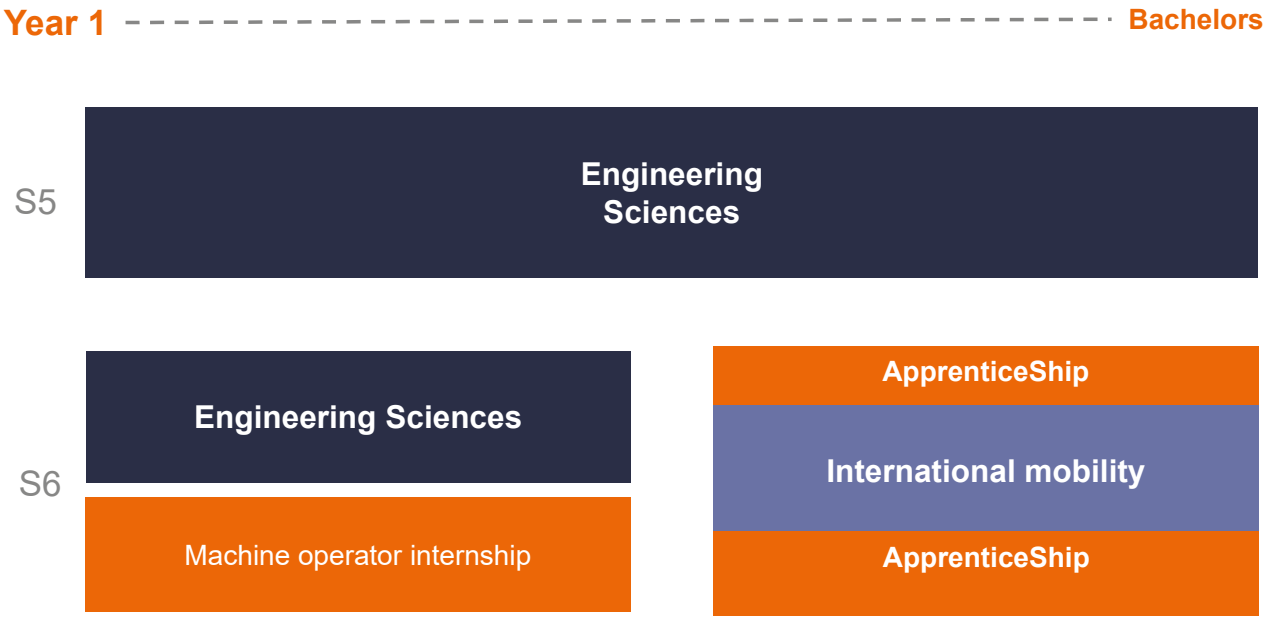
Graduate engineering program

12/11/2025

Contents

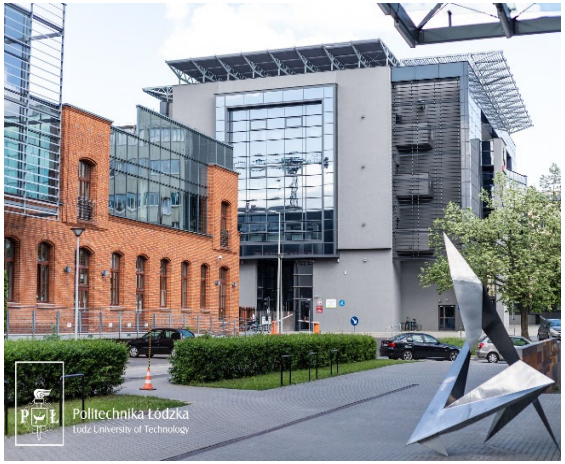

Processes
Opérations unitaires du GP,
Energétique,
Automatisme et régulation …
GDD, Gestion de la qualité,
Gestion de projet
Management de l'innovation
Entreprenariat, …
Management
Products and Materials
Chimie générale, chimie-physique,
chimie analytique
chimie de la biomasse …
Physique des matériaux fibreux
et des polymères, propriétés optiques,
Propriétés barrières, Biocomposites …

Graduate engineering program



"Materials Science – Chemistry – Processes"

2027, march-june : international mobility
ŁODZ UNIVERSITY of TECHNOLOGY - POLAND



Graduate engineering program

Year 2 — Masters 1

	Engineering Sciences		Engineering Sciences	
S7	Fiber and Biomaterials	Print media	Fiber and Biomaterials	Print media
			ApprenticeShip	
S8	Fiber and Biomaterials	Print media	ApprenticeShip	
	Assistant engineer internship		Fiber and Biomaterials	Print media
			ApprenticeShip	

"Materials Science – Chemistry – Processes"

Graduate engineering program

Year 3 ---------- **Masters 2**

S9	**International mobility or Dual degree**	**Innovation Project + Technico-economical Project**
S10	**Final-year project**	

"Materials Science – Chemistry – Processes"

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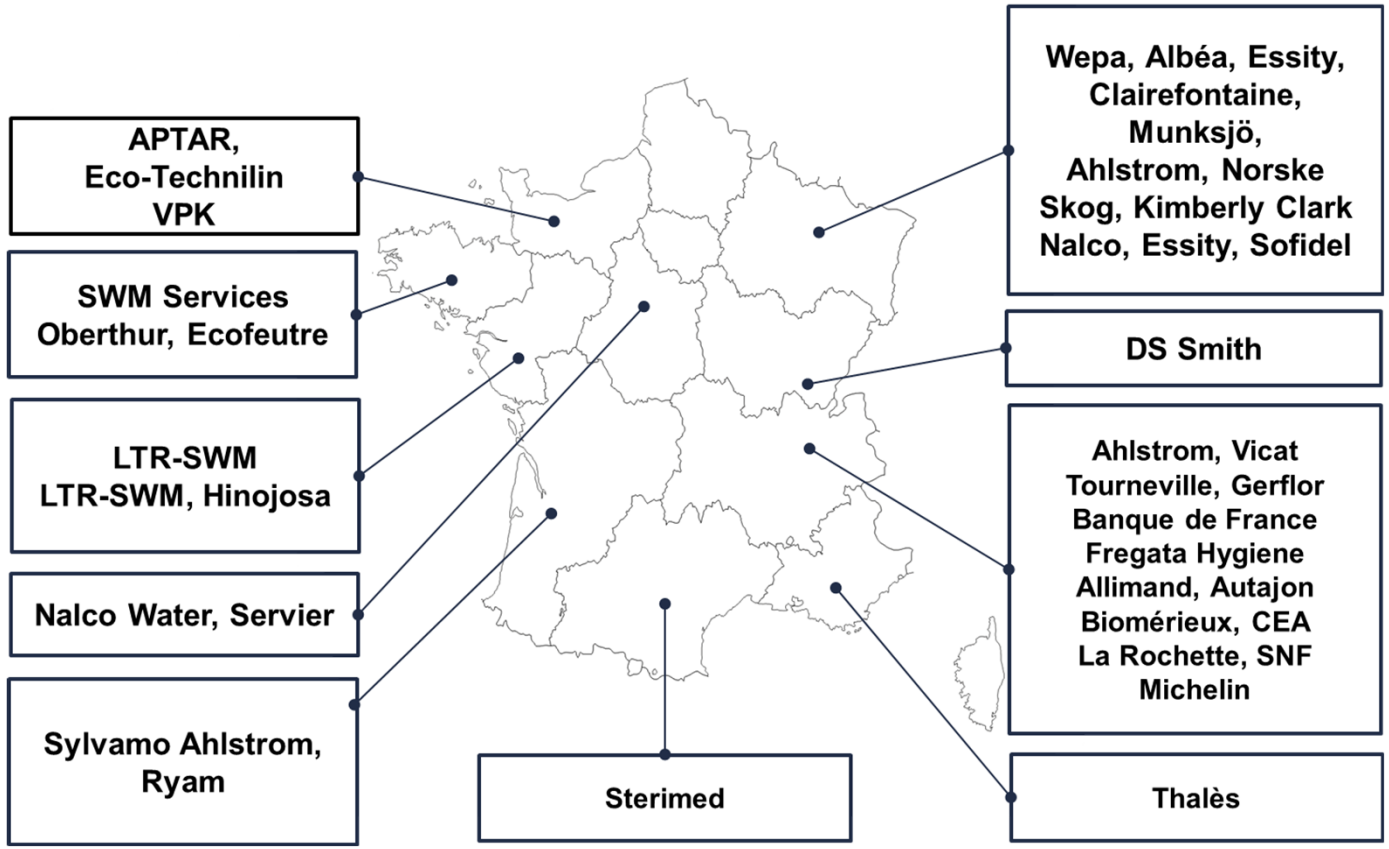
On-the-job immersion: **apprenticeship**

12/11/2025

Apprenticeship



Apprenticeship

18 months
in the company

1, 2 or 3-years
apprenticeship contract

40%
of graduates followed an apprenticeship program

Training provided in partnership with CFA Agefpi

An excellent opportunity to experience the world of work, take part in real-world projects and develop technical, interpersonal and professional skills.

1 among 2 apprentices
hired by their company

Apprenticeship
Key-advantages

925 → 1700
€/month

13
weeks of study abroad

1
laptop

Housing allowance
(in most cases)

Travel expenses
taken in charge

5
weeks
paid vacation / year

International opportunities

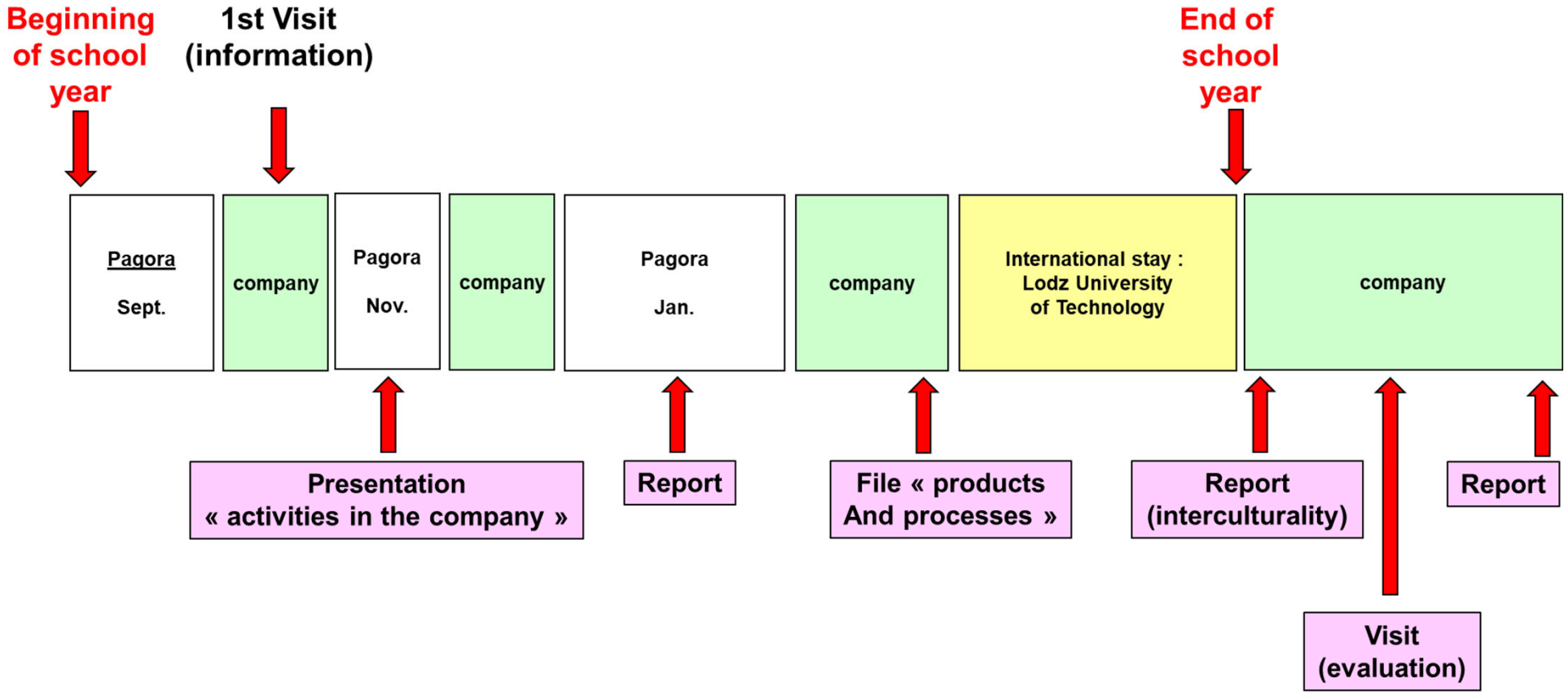
13
weeks at LUT

March to June

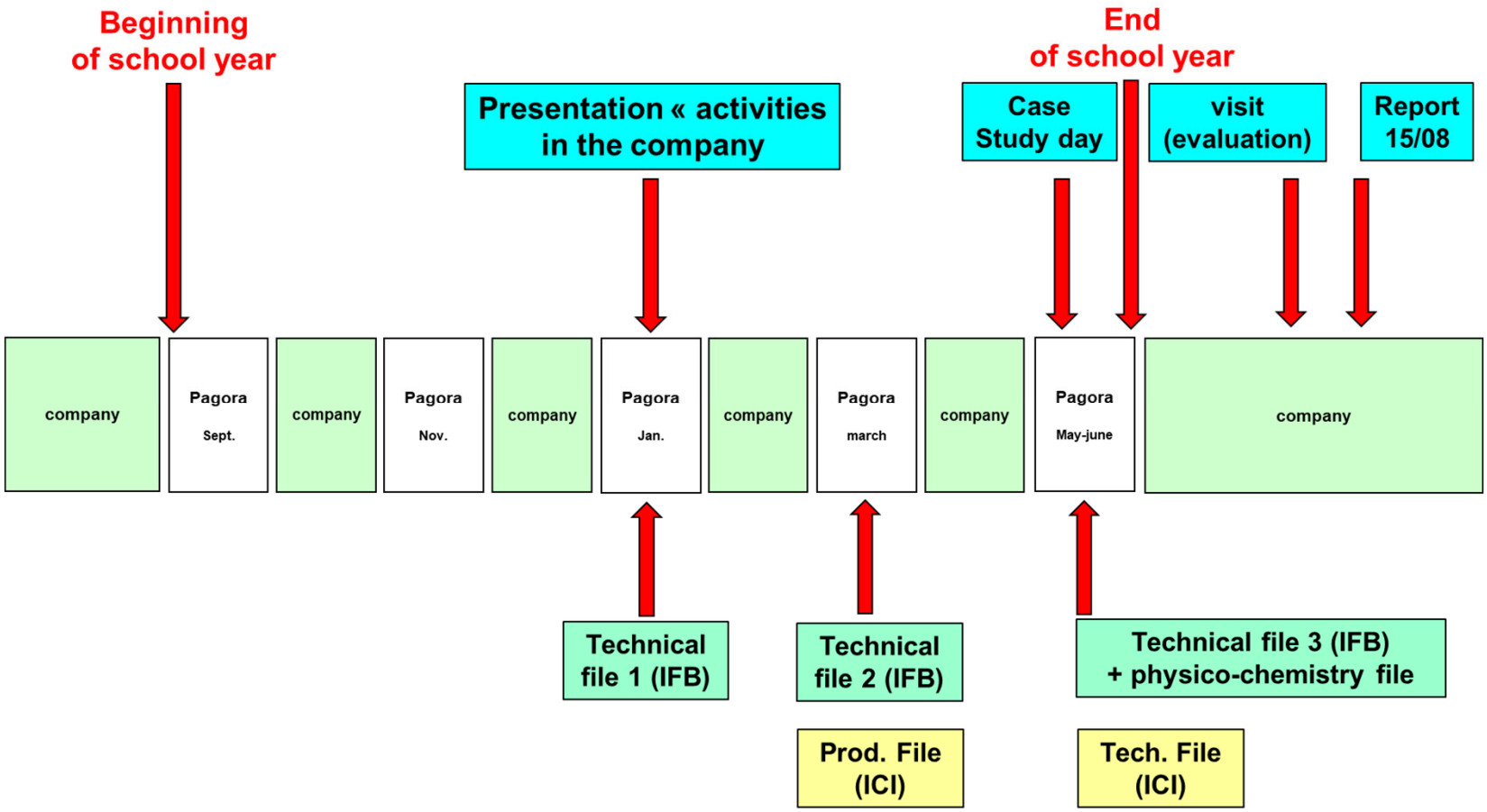
Company visits

Courses in English + Intercultural activities

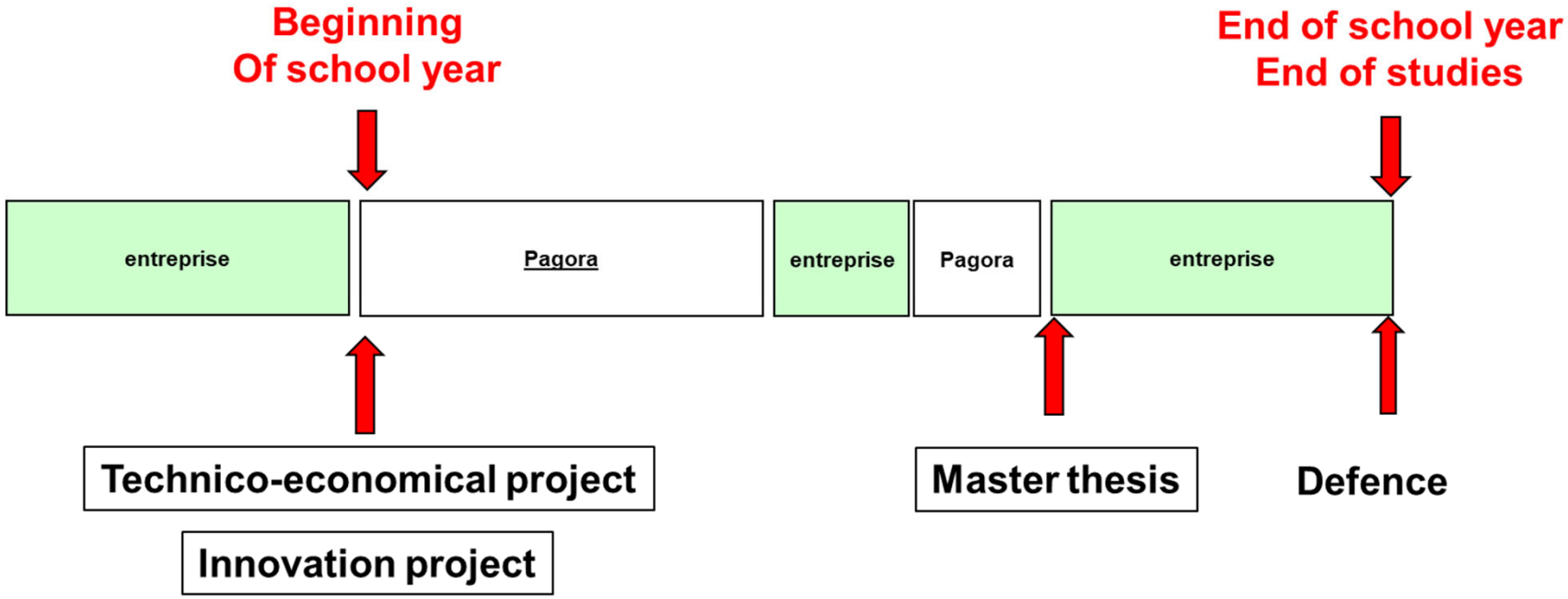
Apprenticeship – YEAR 1



Apprenticeship – YEAR 2



Apprenticeship – YEAR 3



Examples

Marius (3A) : réduction de la consommation d'eau en production

Charlotte (2A) : développement de nouveaux matériaux

Esteban (2A) : développement d'un nouveau procédé de fabrication

Mahfoud (2A) : suivi de la qualité des eaux chez les clients

Loris (3A) : optimisation de la consommation d'énergie chez un client

Job opportunities

Le 22/10/2025

2025101212-Responsable SQHE H/F

Rattaché(e) au Directeur Général, en cohérence avec la politique du Groupe, et en étroite collaboration avec les autres fonctions : Pilote le management par la qualité, la sécurité, l'hygiène et le respect de l'environnement en s'appuyant sur les lignes directrices des normes ...

Le 22/10/2025

2025101211-Responsable de Production H/F

Principales missions: Vous supervisez l'ensemble des équipes de production afin de garantir les flux et la performance industrielle du site (env. 40 personnes). Vous organisez et mettez en œuvre le plan de production (équipements, matières, personnels, organisation) en fonction des prévisions de charges ...

Job opportunities

Le 18/09/2025

2025091194-R&D Intern in Paper Technology H/F

As an intern, you will actively contribute to ongoing R&D initiatives. Your tasks will include: - Developing and testing new paper-based products and technologies - Conduct laboratory experiments and analyze research data - Assisting with the optimization and scaling of paper materials for heating applications - Participating in project planning ...

Le 15/09/2025

2025091192-Ingénieur Technico-commercial - Division Papier H/F

Principales responsabilités • Vous réalisez votre mission en respectant les standards de sécurité/ environnement /qualité • Vous apportez aux clients un service à valeur ajoutée par le biais d'expertise technique, de suivi et monitoring des applications • Vous atteignez les objectifs et Chiffre d'Affaires fixés • Vous développez le Chiffre ...

Job opportunities

Le 17/10/2025

2025101199-Ingénieur processus/Ingénieure processus

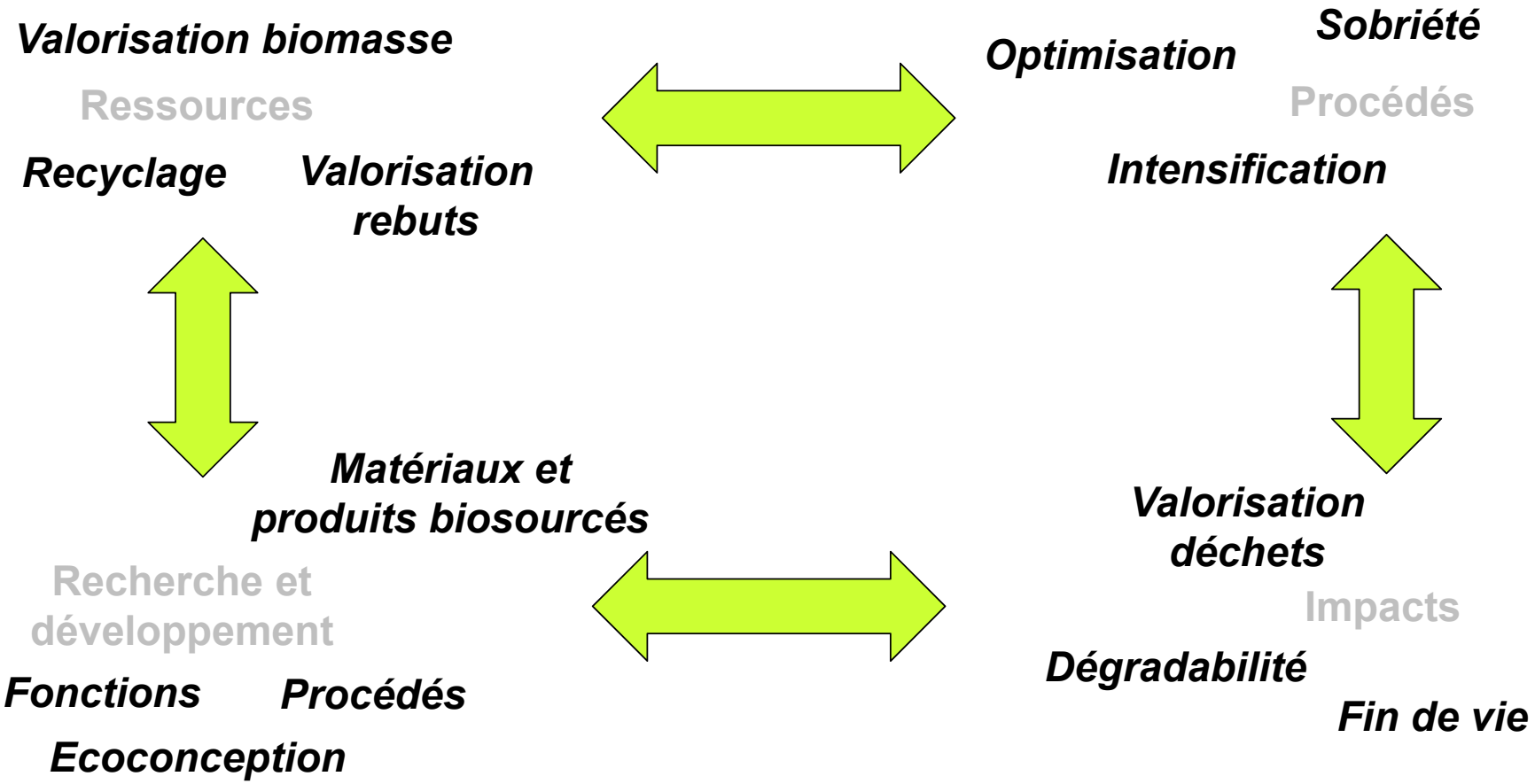
Liste des missions principales : Amélioration continue : Identifier les axes d'optimisation des procédés de fabrication et mettre en œuvre des actions concrètes pour améliorer la sécurité, la qualité et la productivité. Suivi de la performance : Analyser les résultats de production au quotidien, détecter les ...

Le 16/10/2025

2025101193-Coordinateur.trice QA H/F

Pour notre site de production de Champ-sur-Drac (38), nous avons une belle opportunité pour un.e Coordinateur.trice Qualité. Dans ce rôle essentiel, vous rapportez au Manager Qualité et vous assurez la gestion, l'animation et l'amélioration du système de management de la qualité. Vous contribuez à la vie qualité de l'UAP ...

Être ingénieur Pagora c'est travailler sur …



Compatibility grid / 10

You like concrete fields
Polyvalent
Curious
Pragmatic
Fond of science
Looking for specialities
Sensitive to environmental issues
Looking for public graduate school
Looking for apprenticeship
Willing to work internationally

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Thank you for your attention

12/11/2025