



enstib

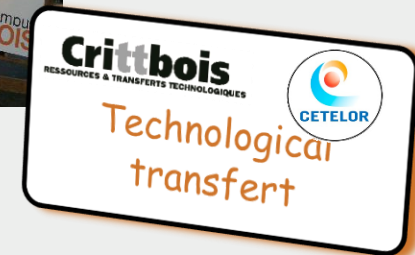
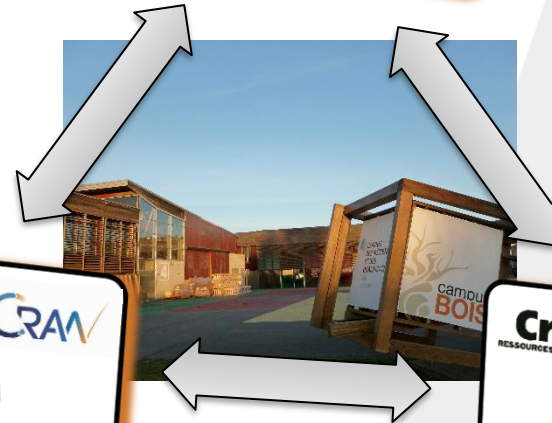
WOOD: A NATURAL SOURCE OF INNOVATION

Wood campus Epinal

Education



Wood campus



➔ Applied research, strongly connected to industry...
but not disconnected of basic research

393 partner companies

52 sites

830 000 m²

60 000 students

562 M€/ year

3 700 Teachers and researchers

3 000 Technicians &administratives

61 Laboratories

8 Collegiums

11 Engineering school

4 500 Engineering students



MEMBRE DE :



HABILITÉ PAR :



LABELLISÉE :



NANCY

Cycle préparatoire polytechnique

École nationale supérieure des mines de Nancy

École européenne d'ingénieurs en génie des matériaux

École nationale supérieure d'agronomie et des industries alimentaires

École nationale supérieure d'électricité et de mécanique

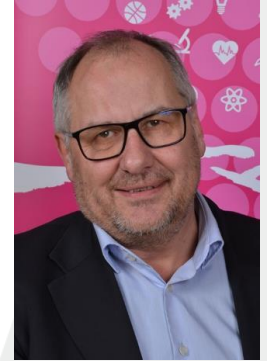
École nationale supérieure de géologie

École nationale supérieure des industries chimiques

École nationale supérieure en génie des systèmes industriels

École supérieure des sciences et technologies de l'ingénieur de Nancy

Télécom Nancy



EPINAL

École nationale supérieure des technologies et industries du bois (ENSTIB)



METZ

École nationale d'ingénieurs de Metz



400 ENSTIB Students
4 M€/year (excluding research)



1 forest-wood industry
4 main sectors



1 School amongst **11**
3 hosted laboratories



2 sites: « **Campus Bois** »
+ CHEC (Paris)
15 000 m² built



3000 Graduated
students since **1985**



34 teacher-researchers
28 technical administrative BU
90 industrial stakeholders



11 degrees
6 dual degrees

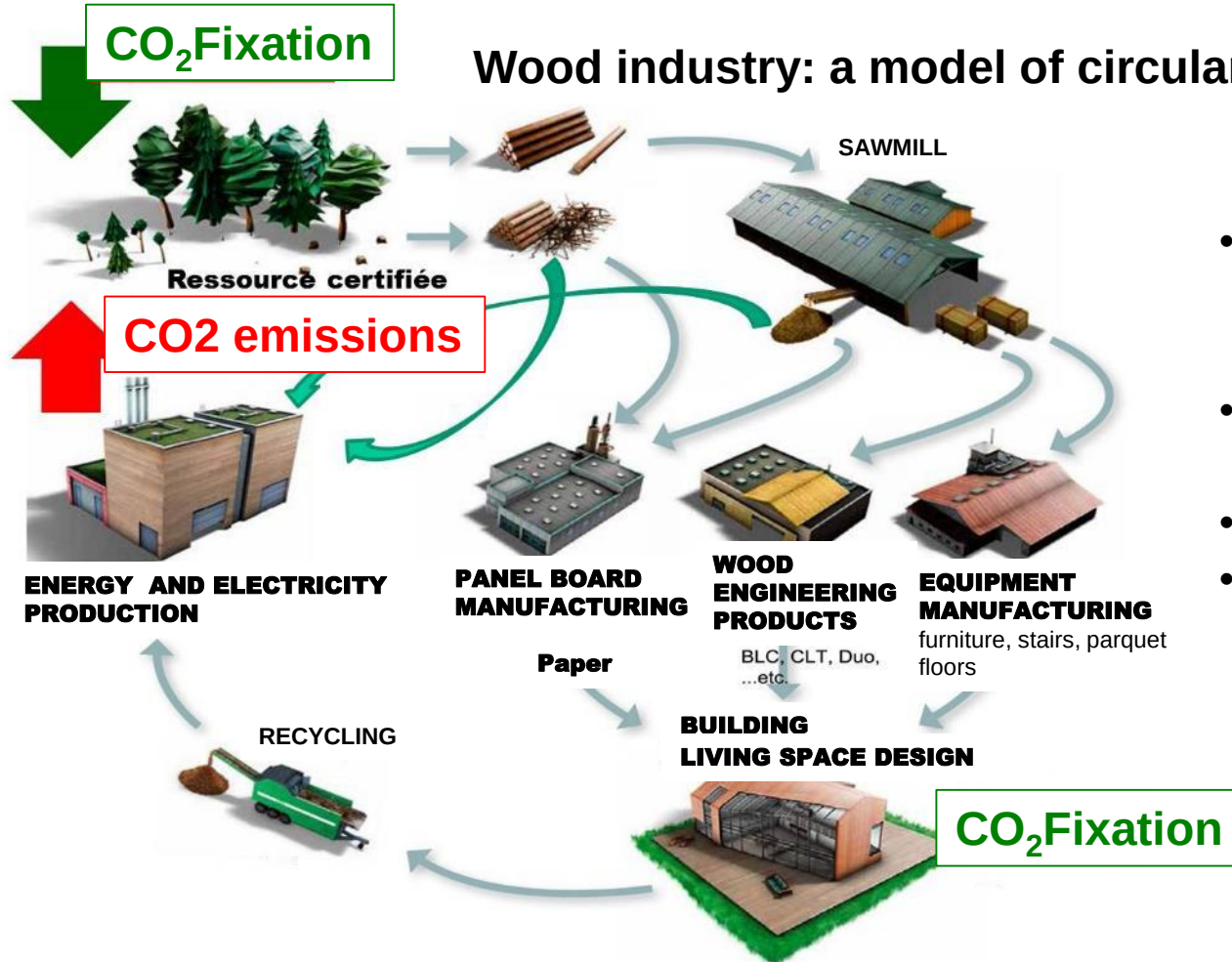




Promotion Dominique Gauzin-Müller



150 to 180 graduates / year who contribute 90% to economic development companies in the regional, national and international forest-wood sector.



- To be present on all the links of the Forest and Wood sector
- Be present on the entire European LMD system
- Major tool in R&D
- Partner in technology transfer and industrial support

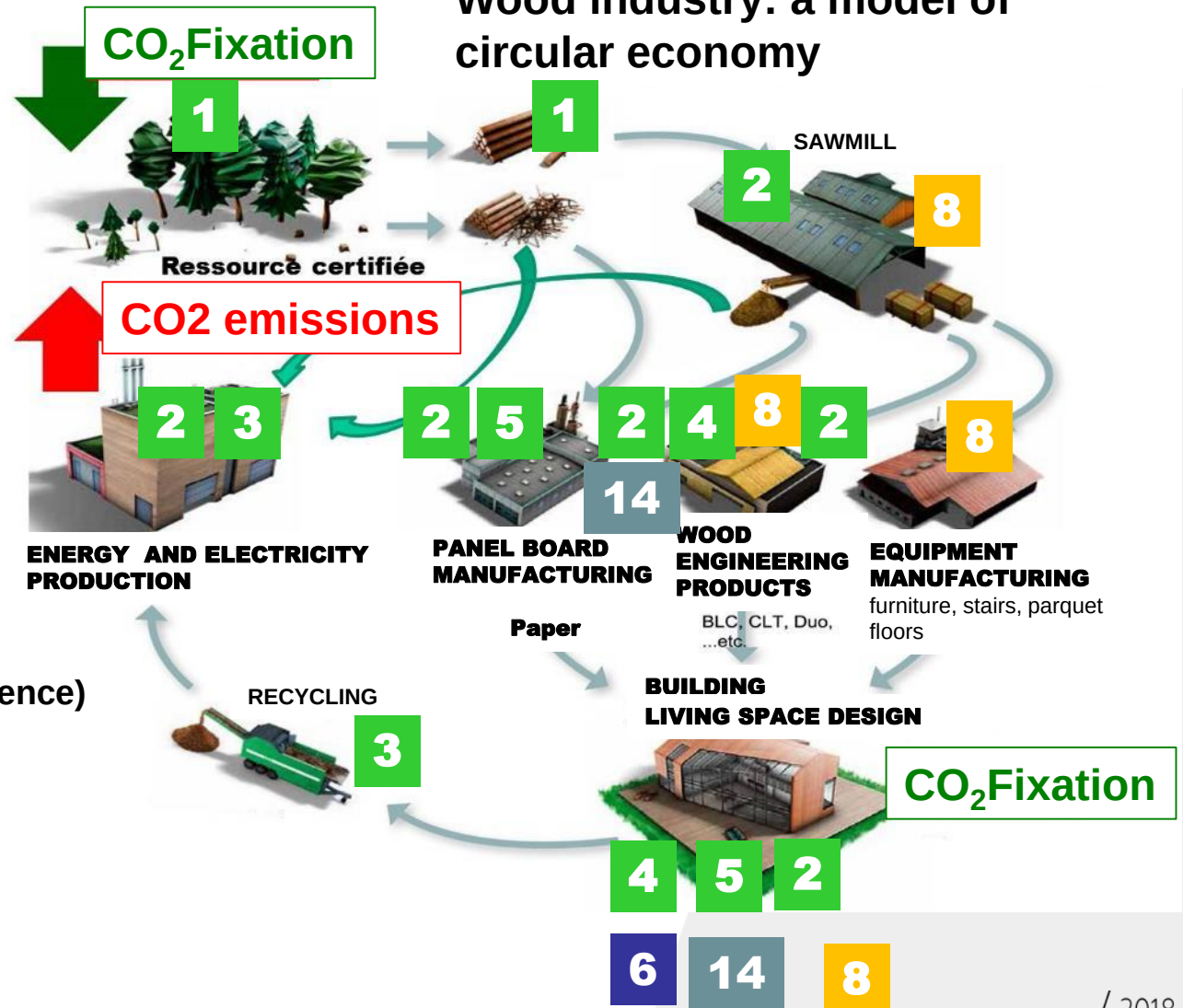
- 1** > Double degree
ENSTIB+ APT engineer
- 2** > ENSTIB engineer
Industrial systems engineering
- 3** > ENSTIB engineer
Wood Energy Environment
- 4** > ENSTIB engineer
Eco Construction
- 5** > ENSTIB engineer
Biorefinery & Biobased materials

8 Professional degree (licence)

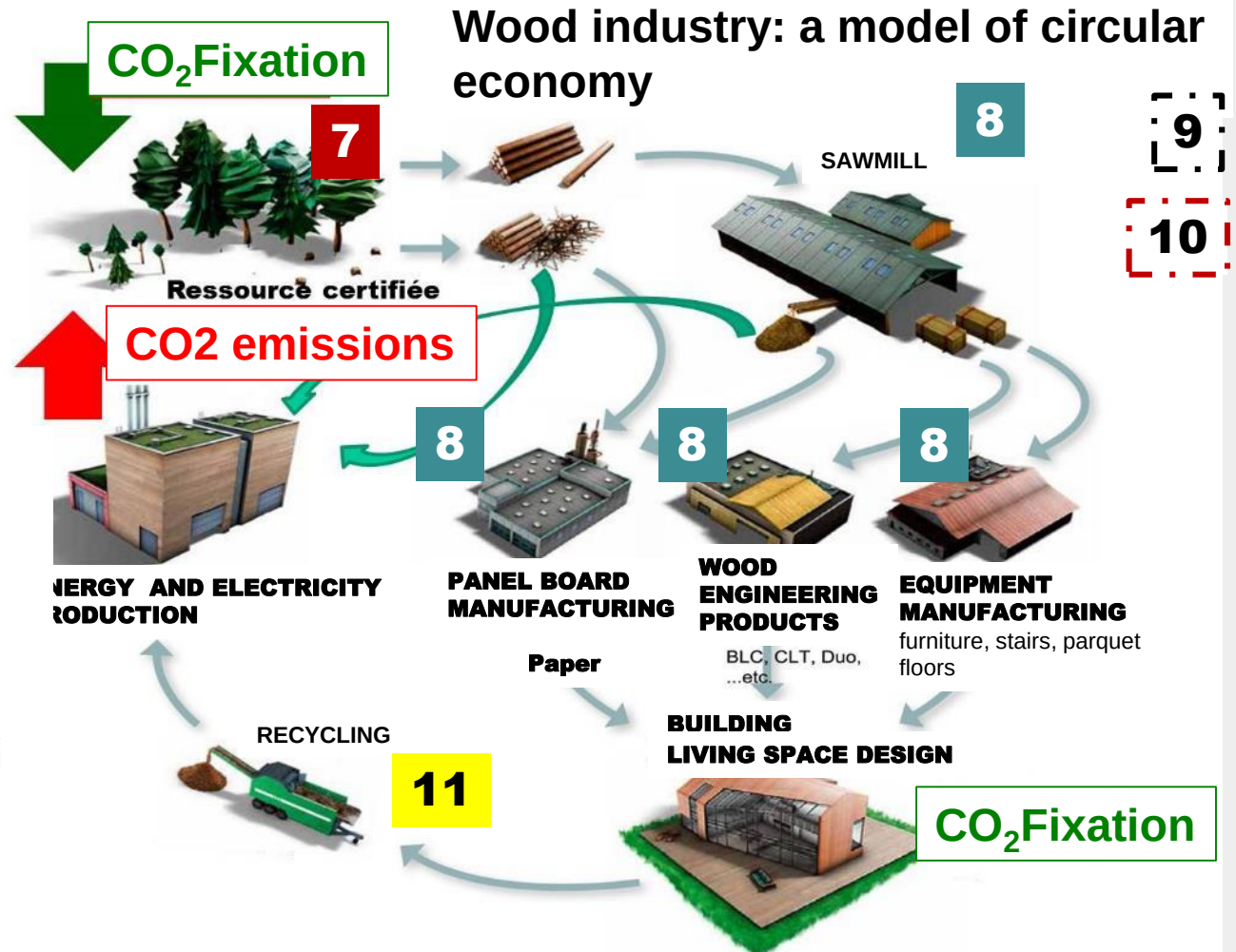
6 Master Wood Architecture
Construction

14 Mastère CHEB

Wood industry: a model of circular economy



External
Double degrees



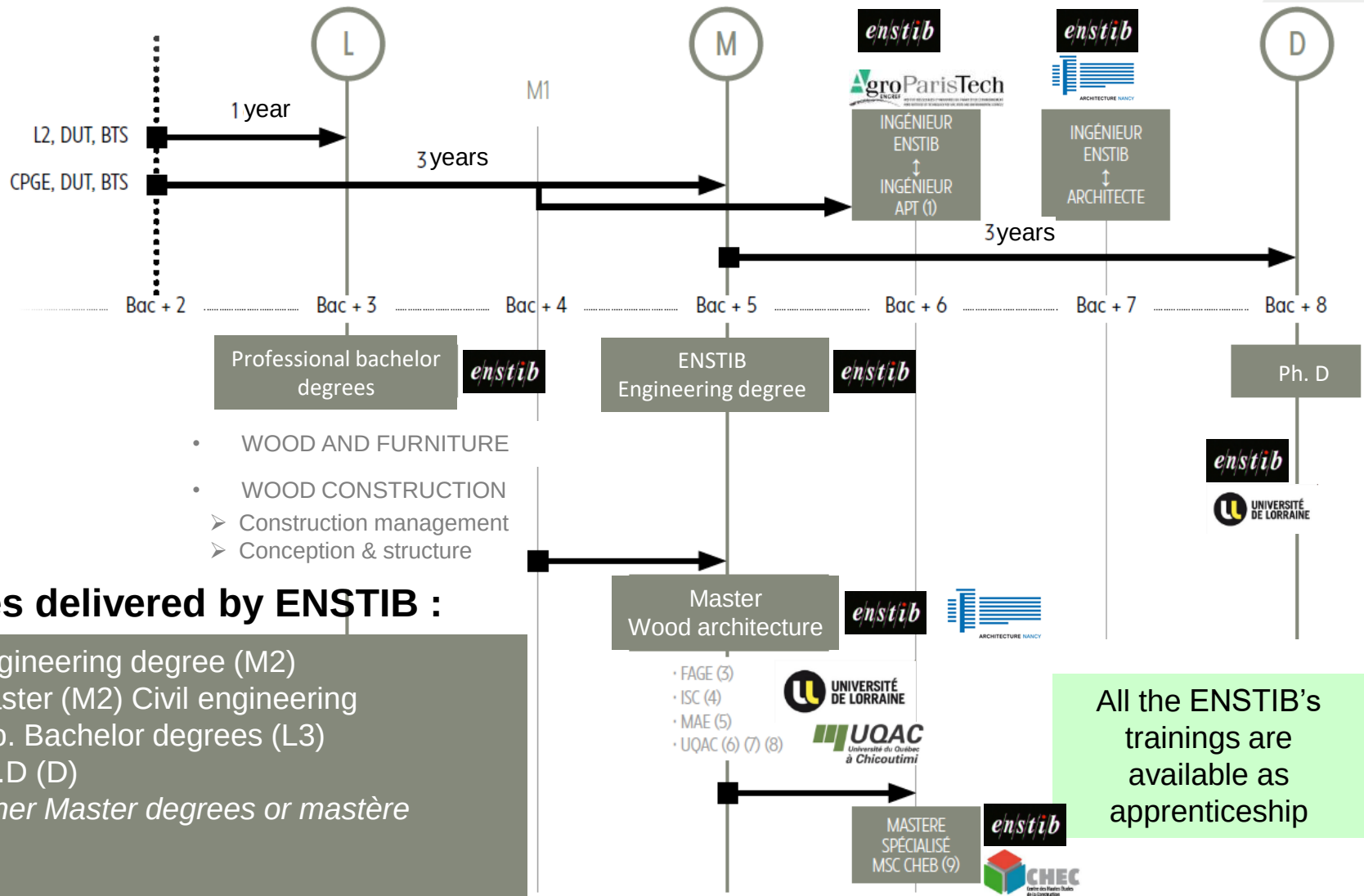
7 > Master FAGE

8 > Master ISC

9 > Master MAE

10 > DESS Gestion de projet

11 > DESS Eco-Conseil



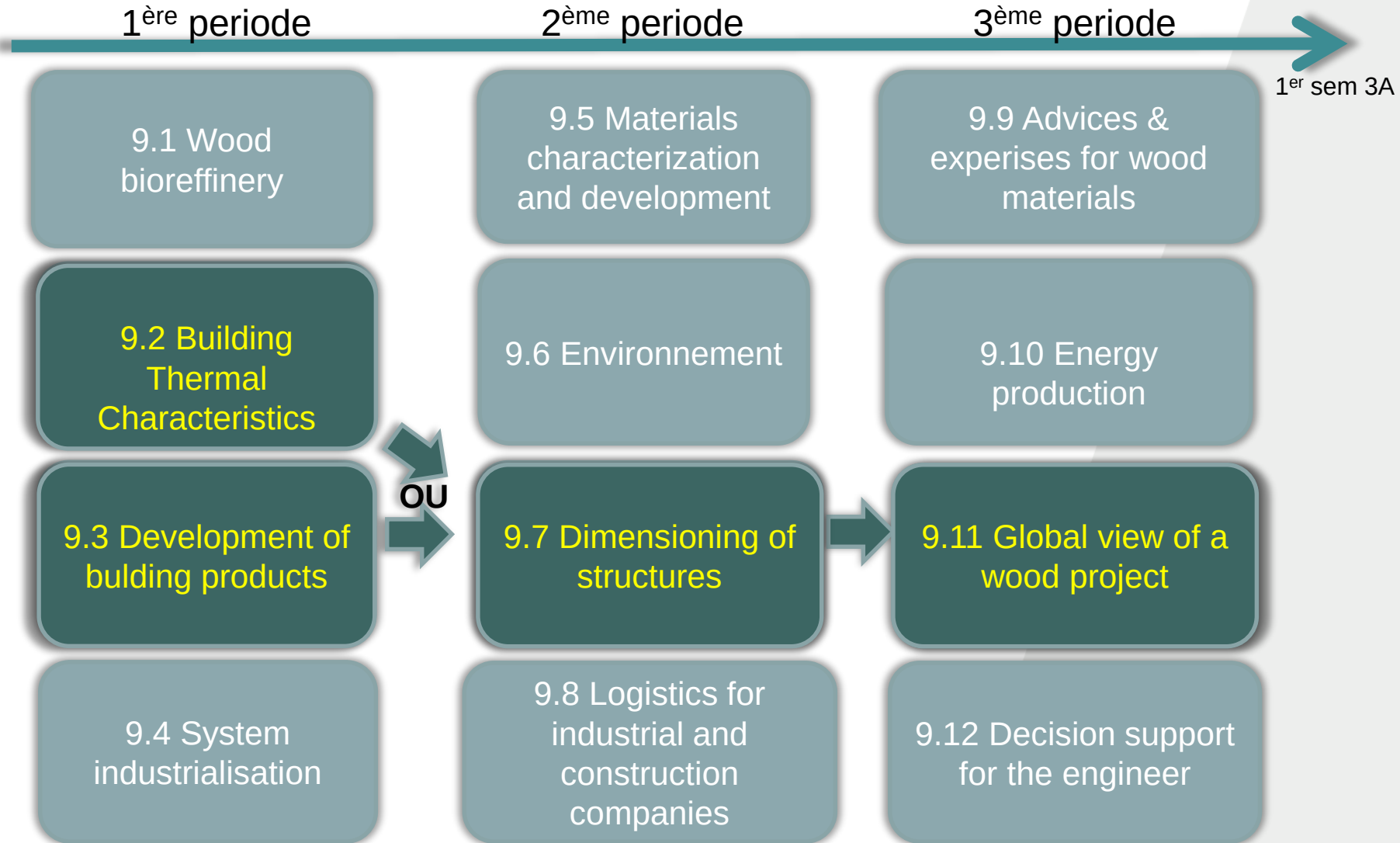
Degrees delivered by ENSTIB :

- Engineering degree (M2)
- Master (M2) Civil engineering
- Pro. Bachelor degrees (L3)
- Ph.D (D)
- *Other Master degrees or mastère*

All the ENSTIB's trainings are available as apprenticeship

Specialization during engineering training

Example : resp. engineering consultant in construction



Wood campus Epinal

Research

1 industry 4 sectors



Wood Energy Environment



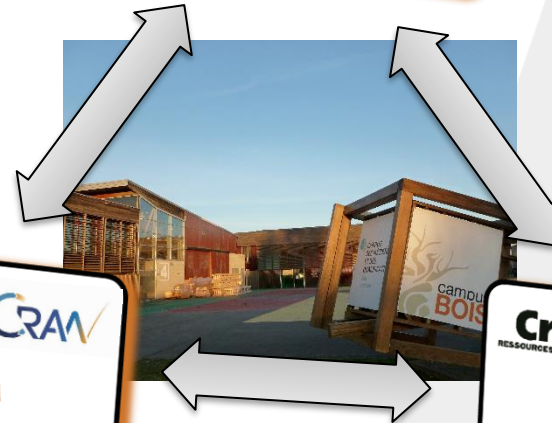
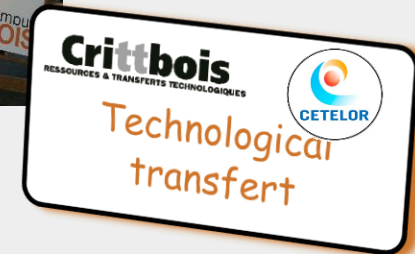
Industrial systems engineering



Eco Construction



Biorefinery &
Biobased materials



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LERMAB : Wood study and research laboratory

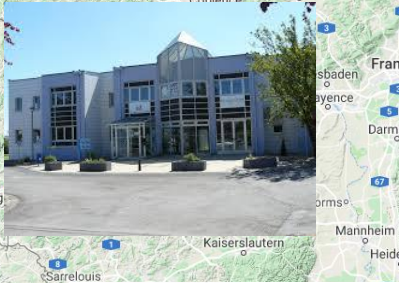
Multi-site laboratory



90 members.

Wood campus= 16 Dr., 4 Techn, 10 PhD & post-doc

IUT Longwy



FST Nancy



Pr. Philippe Gérardin
Head

Wood campus Epinal



Pr. Yann Rogaume
Vice-head



Axe 3 : Energy, Mechanics, Wood Construction

Use of wood in construction

Axe 2 : Chemical, Energy and Process Valorisation

From fossil to vegetable carbon

Axe 1 : Material and Processes

Optimize material performance

Building scale

Uses

Transformations

Treatments

board

Wood structure

Cell :

Cell wall

Microfibrills

Molecule

L : lumen
S1+S2+S3 : paroi secondaire
P : paroi primaire
LM : lamelle mitoyenne

Basic properties

Molecular scale

Energy

Civil Engineering

Mechanics

Process Engineering

Chemistry
Biology
Physics

3 research axes

Material and Processes

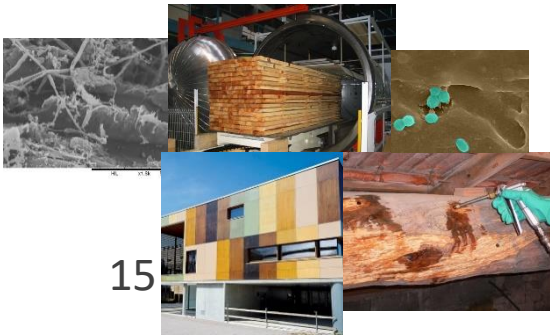
- Surface coatings
- Wood degradation mechanism
- Thermal treatment
- Chemical modification
- Impact of resource variability
- New formulations for wood protection
- Ecological adhesives and composites
- Wood Welding
- Physics of Water in the Wood
- Drying of wood

Chemical, Energy and Process Valorisation

- Chemical recovery of extractives
- Novel synthons for chemistry
- Processes for biomass pretreatment
- Process optimization
- Biomass characterization and packaging
- Combustion of wood
- Pyrolysis/carbonization
- Pyrolysis/gasification
- Environmental impact, LCA

Energy, Mechanics, Wood Construction

- Manufacturing Production
- Mechanics and wooden structures
- Coupled transfers and envelopes
- Energy efficiency



Wood campus Epinal

Technological transfert

1 industry 4 sectors



Wood Energy Environment



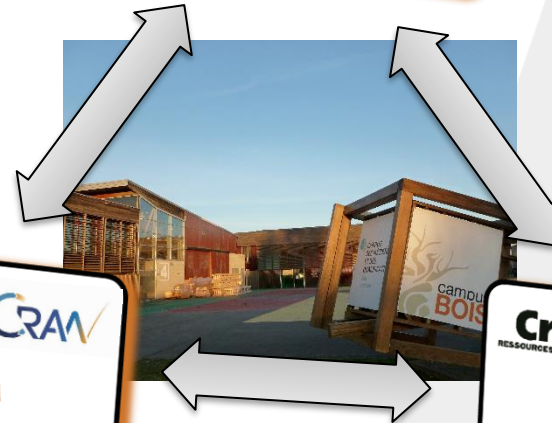
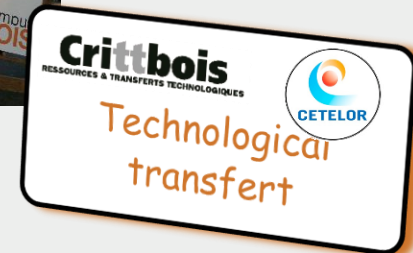
Industrial systems engineering



Eco Construction



Biorefinery &
Biobased materials



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393 partner companies

Activities: Technical Resource Centre for stakeholders in the wood sector:
Companies, Institutions

- Technical support for companies,
- Support innovation in companies,
- To be the interface between companies and laboratories
- Transfer research from laboratories to the companies



Activities: technical centre dedicated to the development of flexible soft textile materials, and composed of a textile metrological analysis laboratory.



cofrac
ESSAIS
ACCREDITATION N° 1-2106
PORTEE DISPONIBLE SUR
WWW.COFRAC.FR
Laboratoire accrédité
COFRAC ISO 17 025

Textile Metrology

Fiber measurement
Measurement of technical yarns
Characterization of fabrics, nonwovens and composites
Characterization of membranes, PPE and TUT
Ageing of materials



Technical R&D Center

Sampling of fabrics and nonwovens
Treatment of tablecloths and fabrics
Flexible and rigid surface assemblies
Composite materials
Project Management
Sectoral monitoring centre



Project NEWFIBRE



Project SINFONI



Project LORVER



Bio-composites
100% biosourced



Recytex



Project FIBRASTRAL

Cellule ingénierie Projets

Montage et suivi de projets de recherche



<http://www.enstib.univ-lorraine.fr>