ARTS ET MÉTIERS

PREPARING YOUNG ENGINEERS FOR THE NEW CHALLENGES OF INDUSTRY 4.0

2019/05/28
11th SEFI Deans Convention – Leuven, Belgium

TALENT BOOSTER FOR THE INDUSTRY OF THE FUTURE

ARTS ET MÉTIERS ParisTech

1 ARTS ET MÉTIERS

Overview

ARTS ET MÉTIERS ParisTech

ARTS ET METIERS

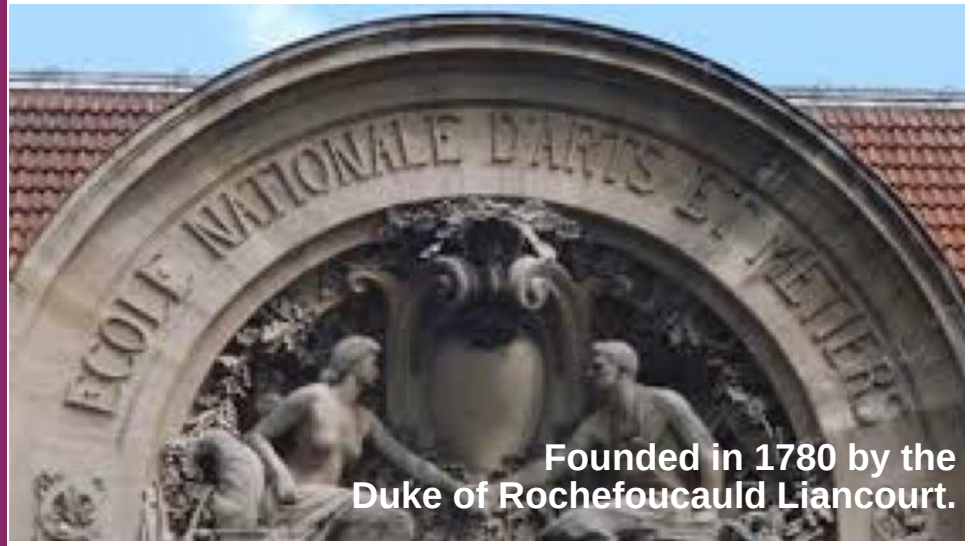
One of the oldest Engineering Schools in France

***Major strengths in* :**
mechanical, industrial & energy engineering

- 12 locations in France

- 6000 students
- 1100 staff (400 Full-time teaching and research staff)
- 300 : Lecturers from industry
- 14 research laboratories

- Renowned for its close industry links
- Ranked 2nd for the number of start-ups
- Ranked 4th best Engineering School
- Largest Engineering Alumni Association in Europe



Founded in 1780 by the Duke of Rochefoucauld Liancourt.

12 locations around France: 8 campuses & 4 Research Institutes

STRONG NATIONAL PRESENCE IN EDUCATION RESEARCH & INNOVATION

1900 Lille

1806 Châlons-en-Champagne

Paris 1912

Metz 1997

Laval

École navale (IRENAV)

Chalon-sur-Saône

Chambéry

1815 Angers

Cluny 1901

1963 Bordeaux

Aix-en-Provence 1843

1780

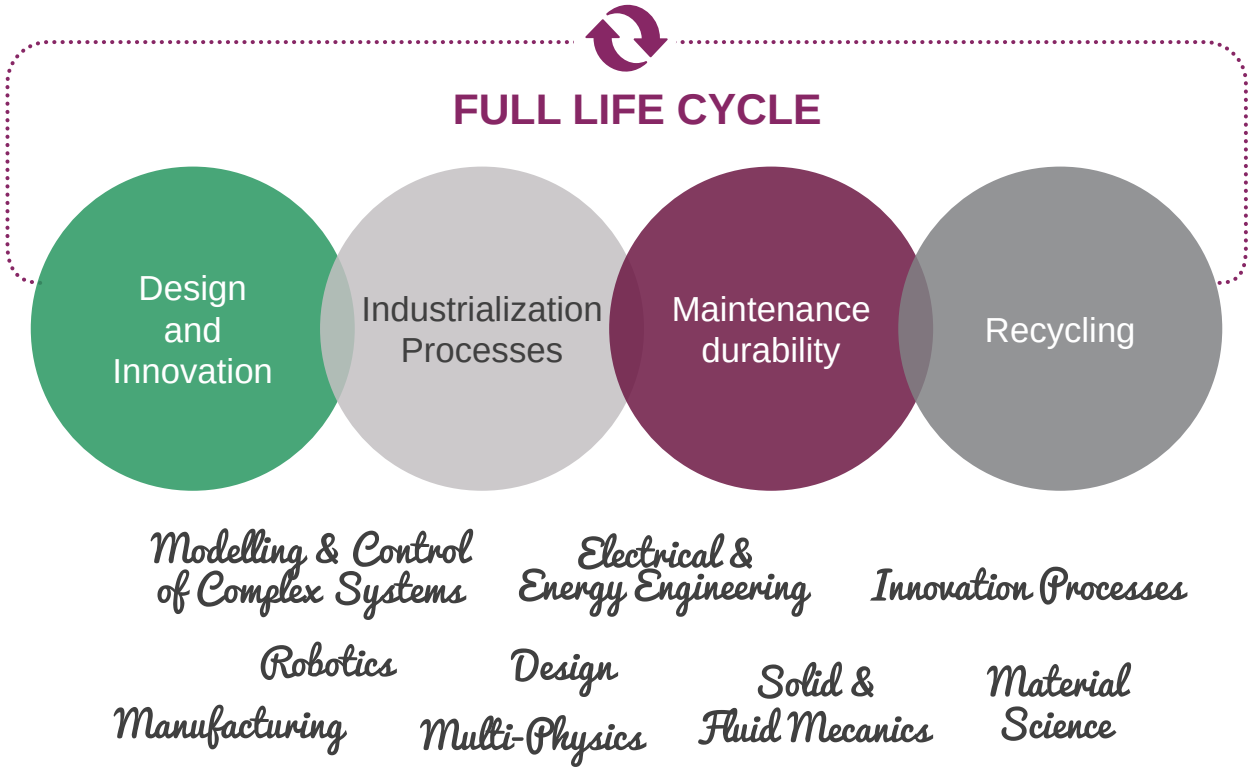
Creation of the School by the Duke De la Rochefoucauld-Liancourt

FULL LIFE CYCLE

SKILLS

Simulation
Characterization
Testing

Training and Research on the **overall life cycle of a product:** from design, conception and production to the product‘s recycling

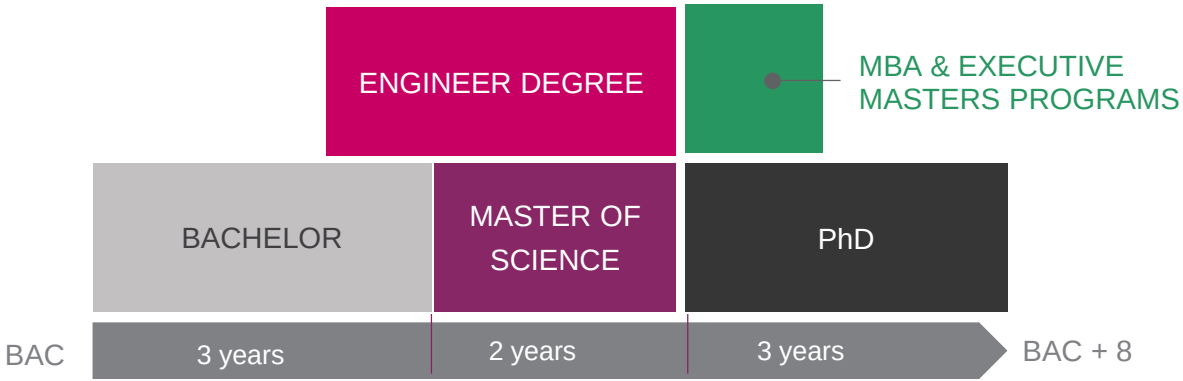


INDUSTRIAL PLATEFORMS

EDUCATION

The School offers training for all :
undergraduate, **graduate** and **executive education**

Arts et Métiers ambitions:
to address the needs of industrial companies in all economic sectors



European Accreditation of Engineering Programmes
EUR-ACE®

Cti

MSC PROGRAMS

1st year core courses*

Mechanical Engineering

- Material & Engng Sc
- Mechanics & Energetics
- Adv Syst & Robotics
- Mech & Material Engng
- Surfaces & Material Engng
- Plasma & Fusion

Industrial Engineering

- Innovation, design and engng
- Virtual Engng & Innovation
- Decision Sc & Risk Managnt
- Information & System Sc.Knowledge
- Integration in Mech. & Prod.

Energy Engineering

- Energetics & Environment
- Fluid Mechanics
- Electrical Energy & Sustainable Dev.
- Naval Engineering
- Mech. Sc & Engineering

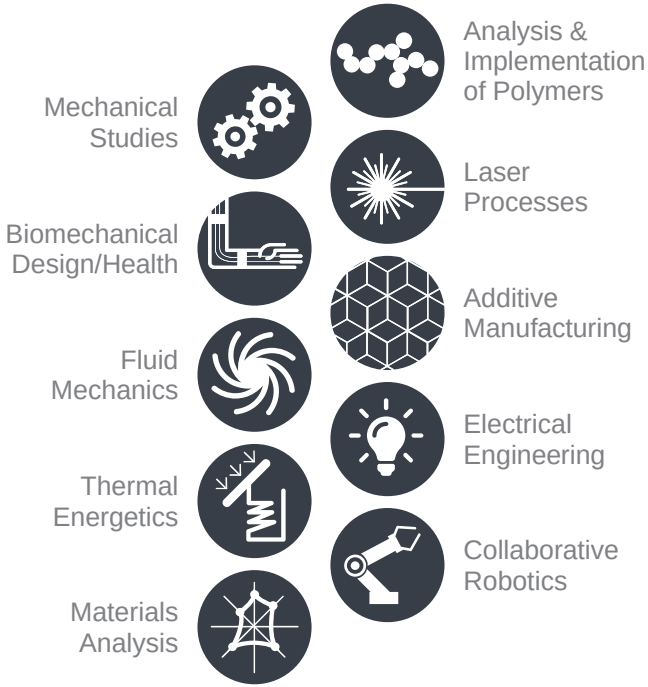
Health Engineering

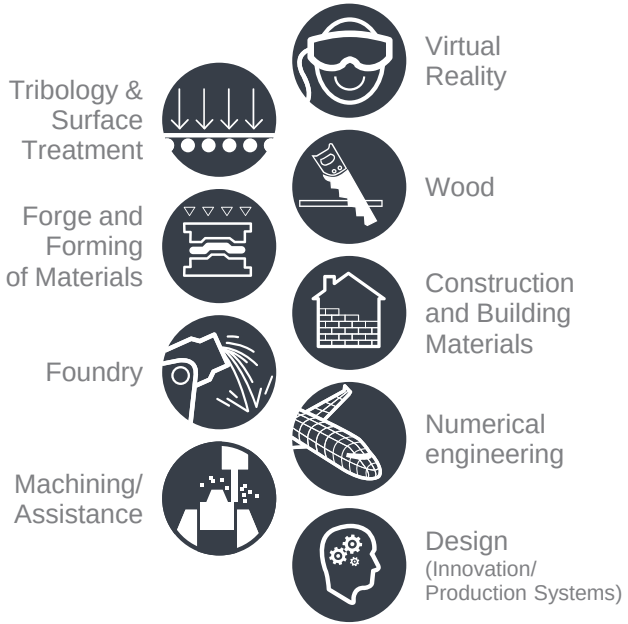
- Bio Material
- Molec & Cell. Biotherapies
- Bio-engineering & Innov. In Neurosciences
- Bio Imaging
- Bio Mechanics

* mechanics, energetic systems, mathematics, computer science, communication, management and organization, Research project in laboratory Internship in industry, Intensive French language & culture courses

MAIN RESEARCH SKILLS

Activities of **14 laboratories** gathered around **20 skills**





WIDE RANGE OF SKILLS THROUGHOUT THE FRENCH REGIONS

CAMPUS & RESEARCH INSTITUTES ARTS ET MÉTIERS PARISTECH

With **12 sites**, Arts et Métiers is close to the the economic players

Lille
Electrical networks for the future et flexible factory

Paris
Society challenges (health, technology, usage, energy, product design...)

Laval
Virtual reality processes

Angers
New manufacturing processes

Bordeaux-Talence
Aaeronautics and sustainable development

Aix-en-Provence
Renewable energies, nuclear & aeronatuics

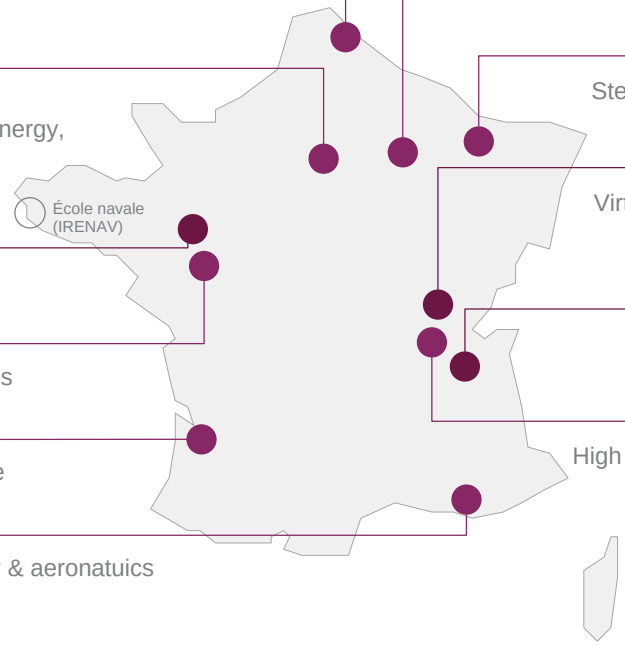
Châlons-en-Champagne
Eco industrial challenges

Metz
Steel, automotive, plastics processing

Chalon-sur-Saône
Virtual immersion and digital mock up

Chambéry
Eco design and risk prevention

Cluny
High speed machining and wood sector



Campus Arts et Métiers Arts et Métiers Branch Connected Institution

INTERNATIONAL

490

students graduate
with a dual degree from Arts et Métiers & Partner university

Our international partnerships are targeting **Education, Research, Innovation** and **Technology transfer**

150 **Partner Universities**

75 **Double degree** programs

47 **Countries**

900 **Foreign students**
In the Arts et Métiers campuses

11 **Dual Master** degree programs

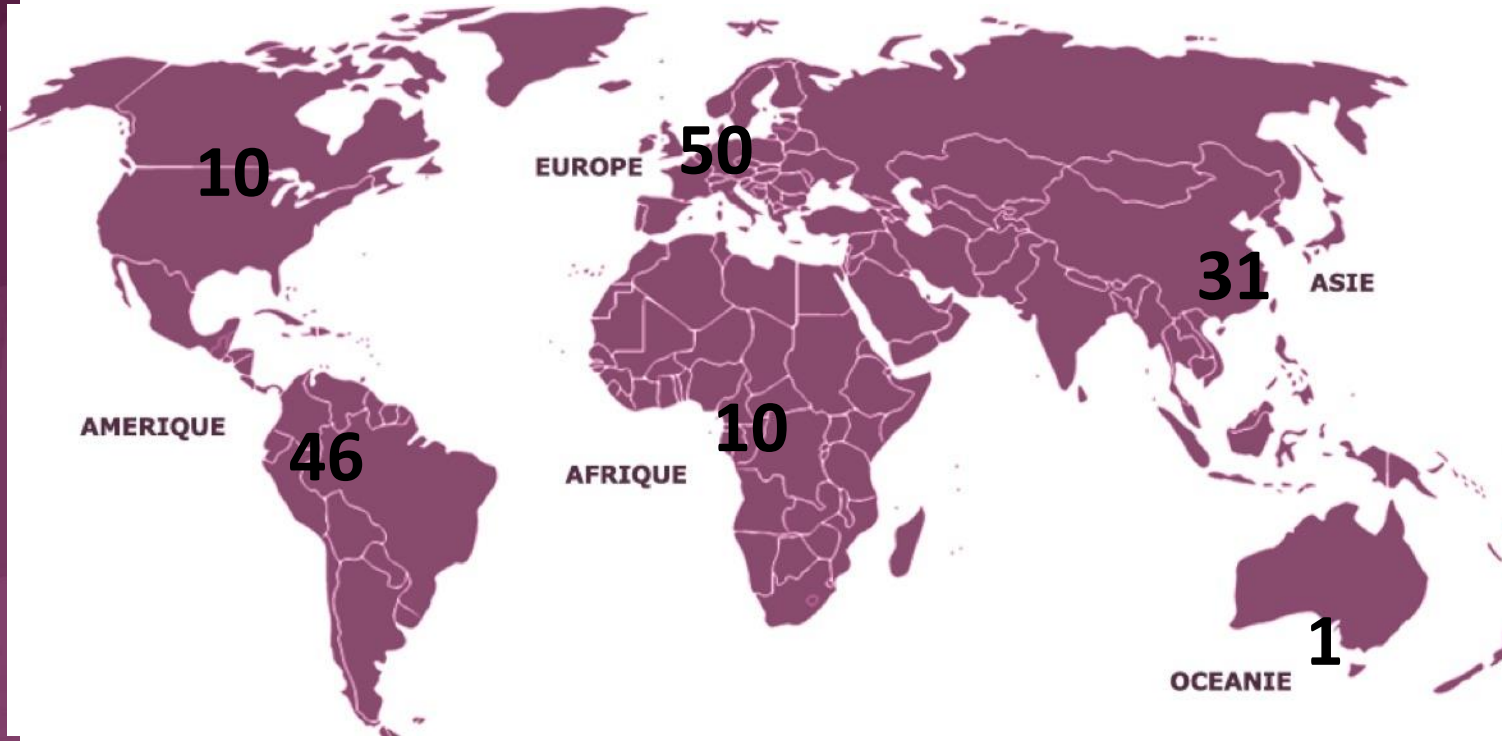
600 **Students**
Have at least one international academic experience
of which 400 with a double degree

30 **Dual PhD** degrees

50 **Foreign guest professors**

INTERNATIONAL

Partnership agreements



ARTS ET METIERS

6000 STUDENTS
400 FACULTIES

Visibility

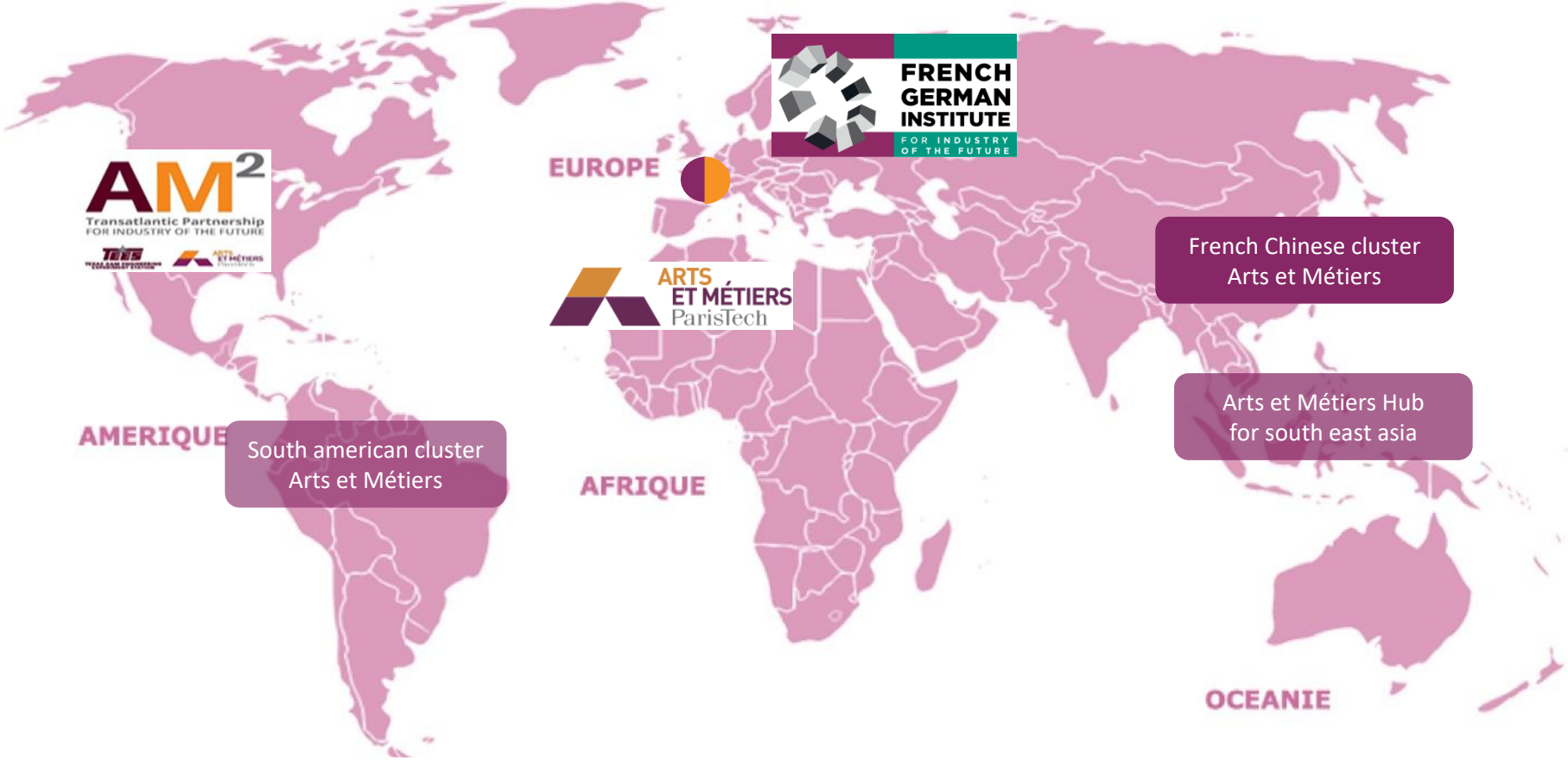
151-200 Mechanical Eng.

200-250 Graduate Employability in 2019

101-150 in Engineering – Mech. Aeronautical & Manufacturing

350-400 in Material Sc.

International strategic projects for industry of the future



2 TRAINING ENGINEERS

For the industry of the future

ARTS ET MÉTIERS ParisTech

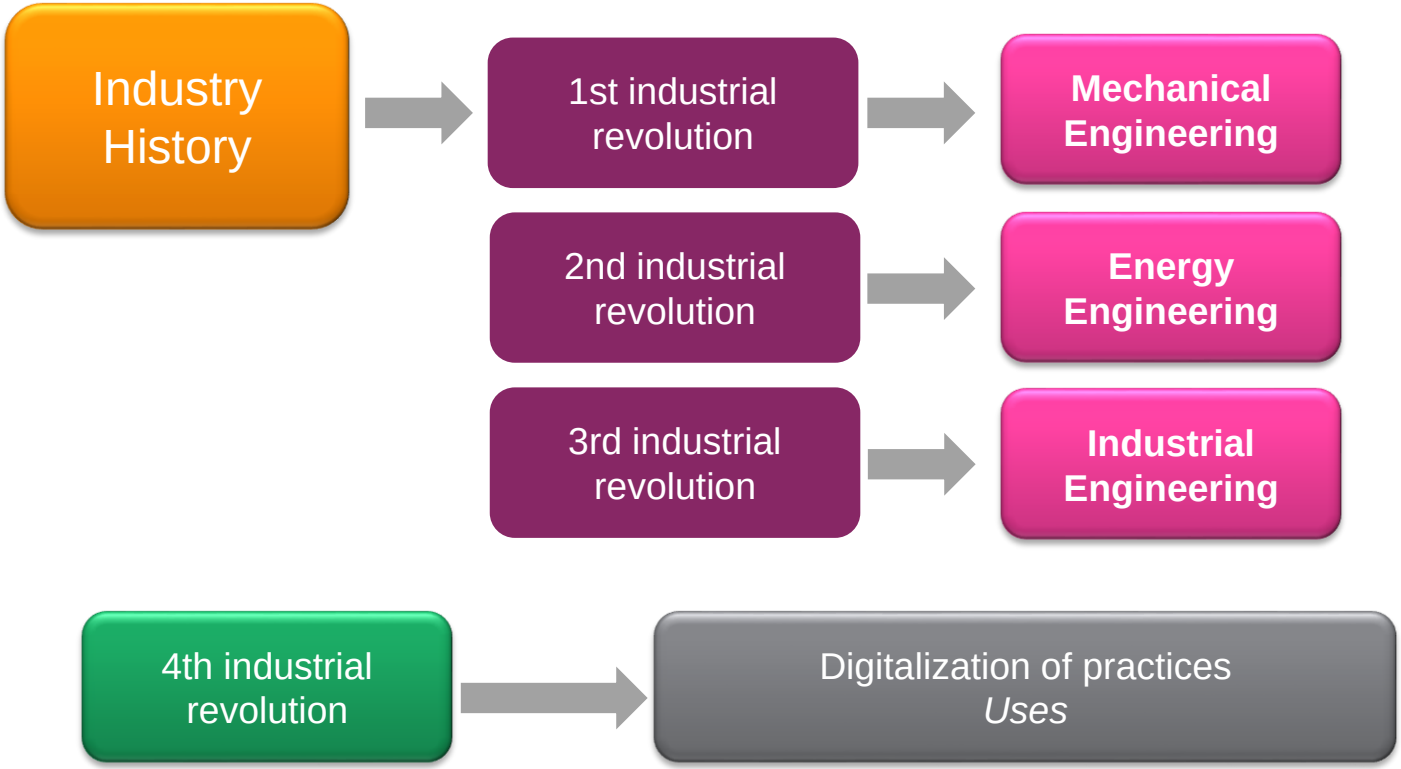
TRAINING ENGINEERS FOR THE INDUSTRY OF THE FUTURE

Many Questions

- Attitude with respect to digital ?
- Training on new technologies ?
- New skills for industry 4.0 ?
- Soft skills for industry 4.0 ?
- Entrepreneurship ?
- Connection with industry ?
- Emerging technologies ?
- Partnerships ?
- Promote Industry for the students ?

ARTS ET MÉTIERS SKILLS

Accompanying the industrial revolutions



ARTS
ET
MÉTIERS

OUR
INDENTITY

INDUSTRY 4.0

Arts et Métiers is a concept

Arts

Sciences

Models

Digitalization
of models

Métiers

Technology

Reality

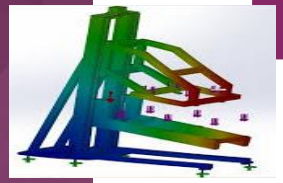
Digitalization
of reality

Women
Men

1780

2020

New practices, Creation of value

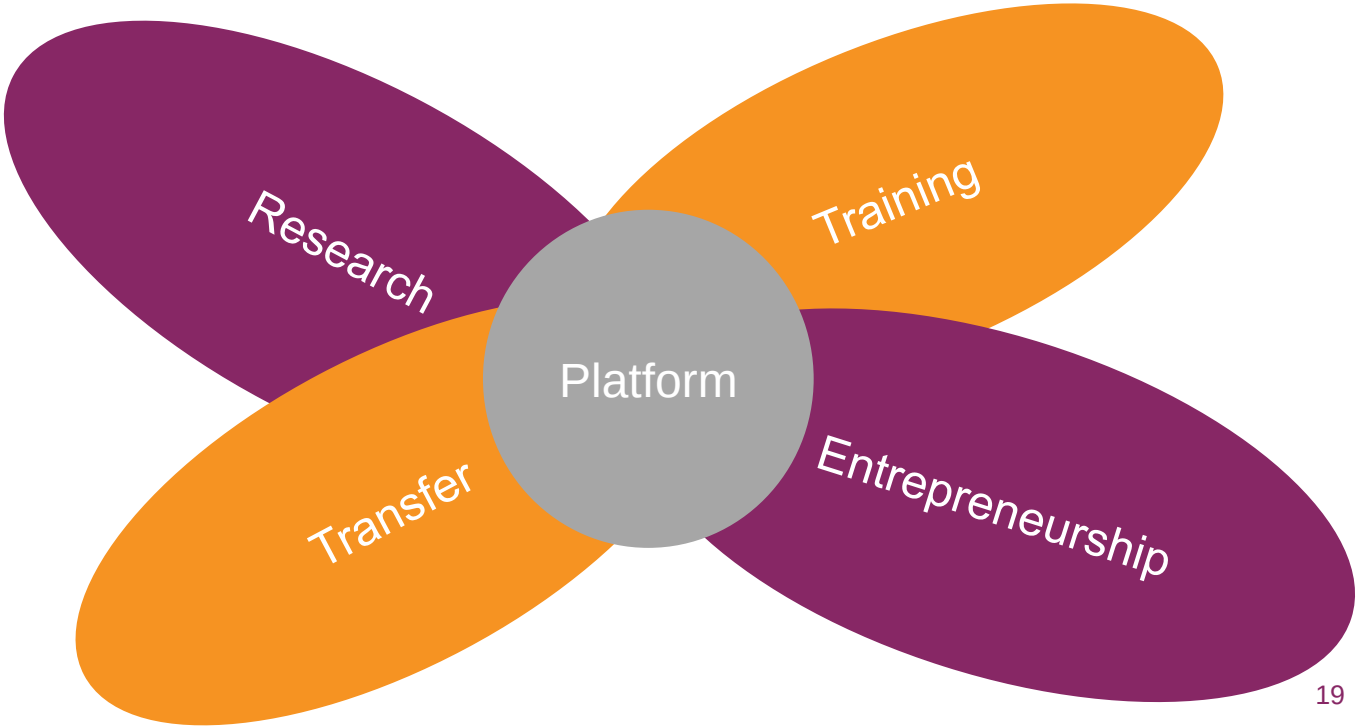


INDUSTRY OF THE FUTURE

Training on new technologies

Opening research platforms to training

Mixing research-training-transfer



NEW SKILLS FOR INDUSTRY 4.0

OSONS L'INDUSTRIE !

DARE THE INDUSTRY !

DARE THE INDUSTRY !

- Joint work between schools of engineering and professional branches
- Series of interviews with industrials
- Information on news needs of professional skills : communication
- Adjustments in curriculums

SOFT SKILLS

STUDENT LIFE ON CAMPUSES

Human values for Industry of the Future

- Ability to adopt the **culture** of an industrial company
- Ability to build a strong and bonded **human community**
- Ability to uphold the **Corporate Social Responsability**
- Ability to anticipate and to accompany **changes**

ENTREPRE-NEURSHIP

Entrepreneurship and business development

« PEPITE » (Pôle Etudiant Pour l'Innovation, le Transfert et l'Entrepreneuriat)

- Student Pole for Innovation Transfer and Entreprenariat
- created in 2014 by the French Ministry of Higher Education & Research

« CREDA » – spécialisation 5th year

Graduate course created to help students who wish to develop and validate a professional project in the fields of:

Business development (technical and economic, business management, management of innovative projects and change management)

Business creation (or takeover).

Entrepreneurship is a mindset.

We are looking for the greatest diversity of projects and personalities to find the talent of tomorrow. Each year students organize a study-abroad trip to develop the leadership qualities.

INDUSTRY 4.0

Connecting students to the industry

- Industry engineers teaching in class
- Internships in the industry
- Apprenticeship and « sandwich » studies
- Industry driven projects
- Visits of factories
- Student-industry meeting
- Student involved in research/transfer contracts
- Students accompanying SME in innovation

ARTS ET MÉTIERS ParisTech

AM VALOR

Fund for the development of industry

INSTITUT CARNOT ARTS

INDUSTRY 4.0

Emerging technologies in research and training

- Cobotics
- Additive Manufacturing
- Digital Twins & Continuity of the digital chain
- Artificial Intelligence
- Virtual & Augmented Reality
- Digital supply chain
- Renewable energy for the industry

Transfer from research to education

Transfer from research to industry

INDUSTRY 4.0

Partnerships

INDUSTRY 4.0

Partnership with Dassault Systèmes

- 3D Experience : main numerical tool at Arts et Métiers
- Continuity of the digital chain
- 6000 individual accesses to 3D Experience
  - 400 for faculties
  - 5600 for students : including student life activities
- Joint Life long education programs
- Arts et Métiers : 1st academic partner of DS in the world !

INDUSTRY OF THE FUTURE

Promote industry

LE FRENCH FAB TOUR

LAVAL VIRTUAL — 2019

L'USINE EXTRAORDINAIRE

GLOBAL INDUSTRIE
Excellence et perspectives industrielles

Osons L'INDUSTRIE

INDUSTRY OF THE FUTURE

Promote industry for women