

# Groupe des Ecoles Centrale *French « Grandes Ecoles »*

GROUPE  
DES ECOLES CENTRALE



ÉCOLE  
CENTRALE LYON



CENTRALE  
MARSEILLE



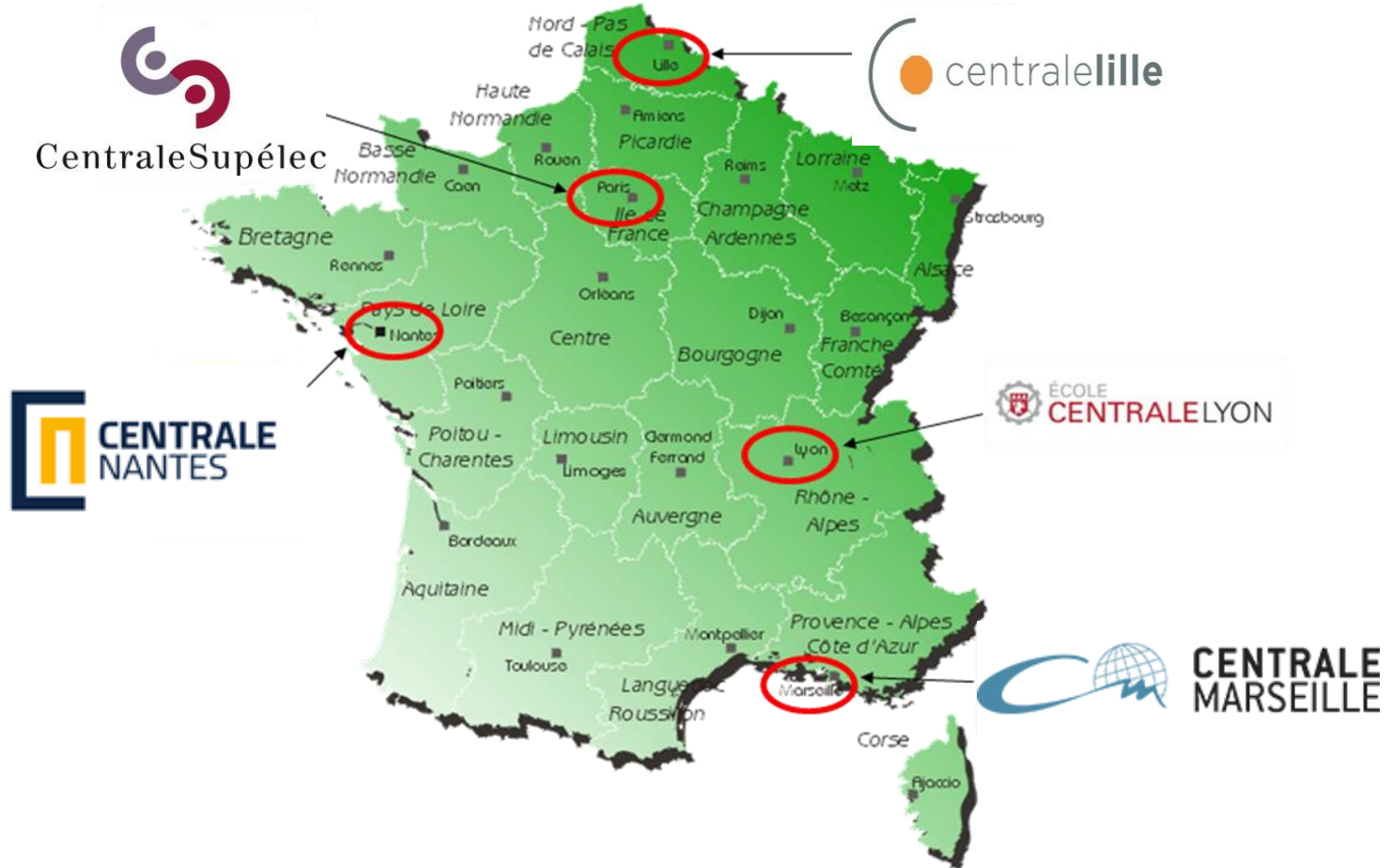
CENTRALE  
NANTES



CentraleSupélec

# The French «Ecoles Centrale»

*Where are they?*



*And Centrale Beijing, Hyderabad, Casablanca, Mauritius*

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# The Group Ecoles Centrale

## *Elite Institutes of Science and Technology*

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### GEC's Vision of Engineering :

- **Multi-disciplinary curricula**
  - Wide knowledge of numerous scientific and technical disciplines
  - Broad overview of future challenging complex problems
- Access to economics, social sciences, foreign languages and humanities
- **Soft-skills training**
  - Leadership, management & innovation courses
  - Team-work and project-work
- **Corporate Networking** (internships, job fairs, conferences)
- Global vision & open-minded approach
- High management potential
- Industrial problem-solving education



# 5 « Grandes Ecoles »

## *Elite Institutes of Science and Technology*

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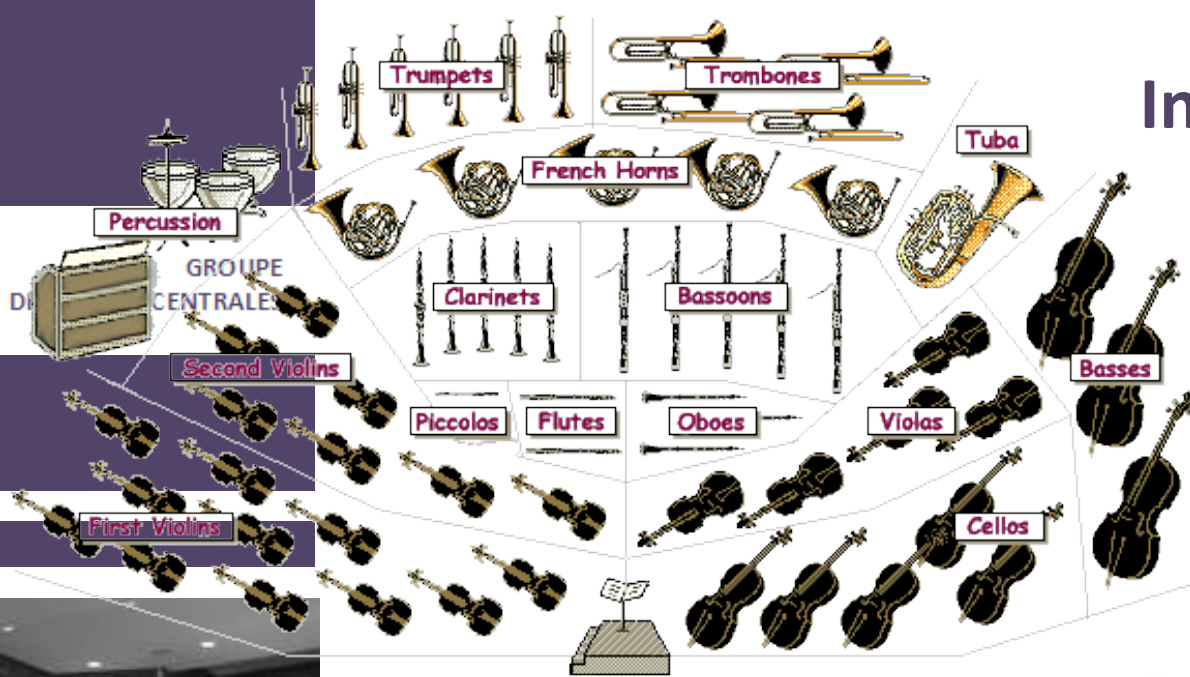
- **Nearly 7 000 students in total**  
20% recruited through international partnerships
- **600 full-time Academic staff**
- **> € 80 million per year in budget**  
50% public / 50% private
- **Research more than 1000 PhD students**  
33 laboratories
- **134 International Partners**
- **Alumni 100 000 engineers in activity**

Strong corporate partnerships and recognition at national and international level

(SNECMA, EADS, SIEMENS, ,RENAULT, BOUYGUES, EDF, NAVAL GROUP,...)

# In a music orchestra ...

- Plays several instruments
- Understands complex pieces of music, such as symphony and opera
- knows how to make all artists play together.



From the leader of a chamber music group ...



... To the conductor of a small chamber orchestra

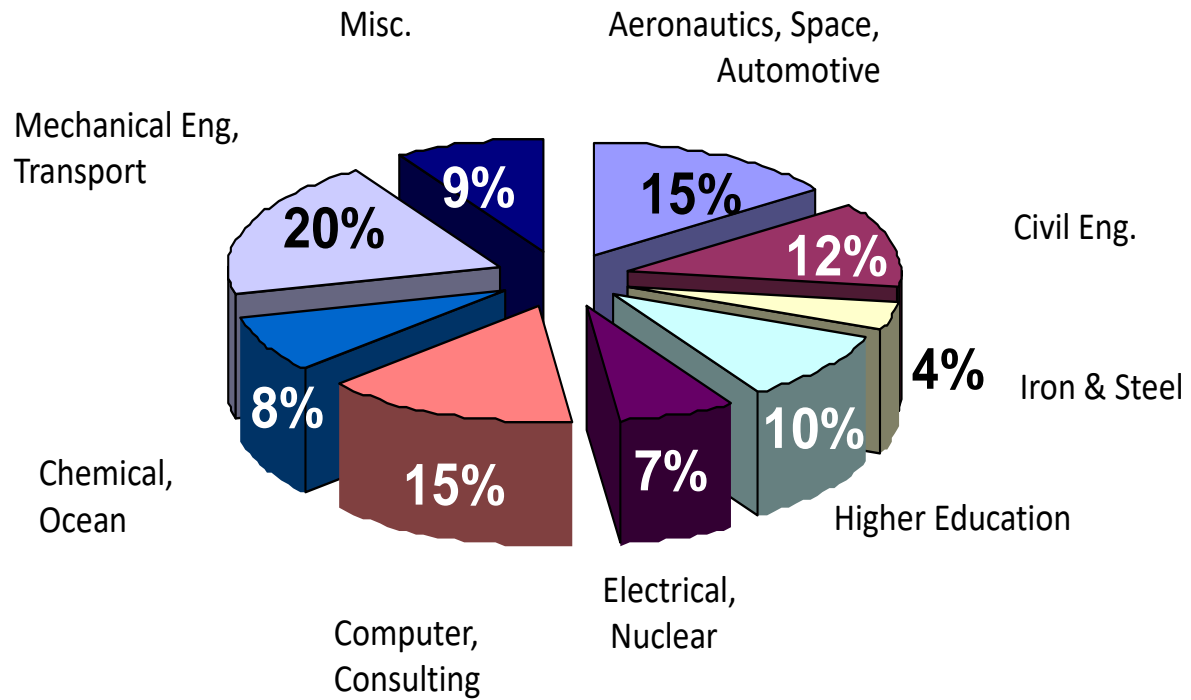


Centrale engineer



Up to the conductor of the largest orchestras in the world...

## Recruitment by sector :



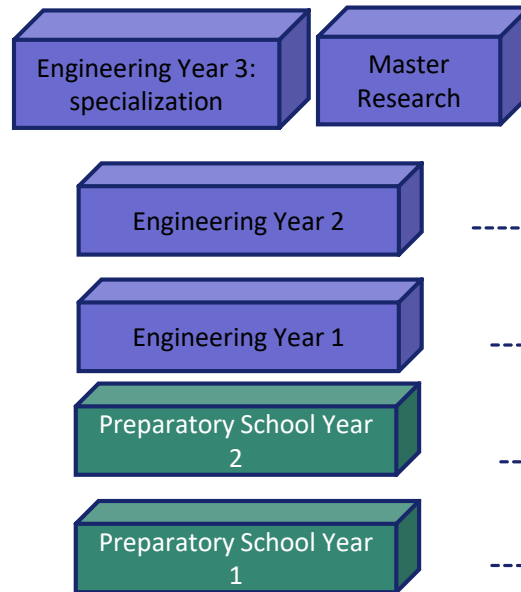
# The Group Ecoles Centrales

## *Elite Institutes of Science and Technology*

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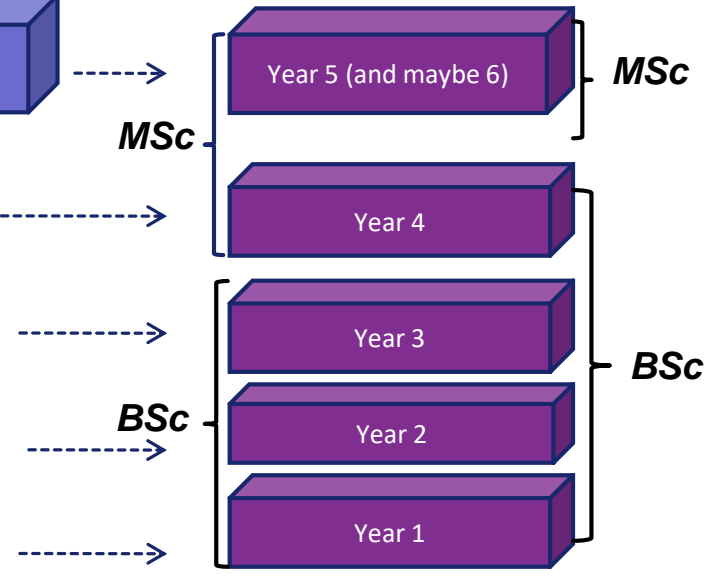
### The 3-year French engineering course model



### EU/US course model

*The EU model*

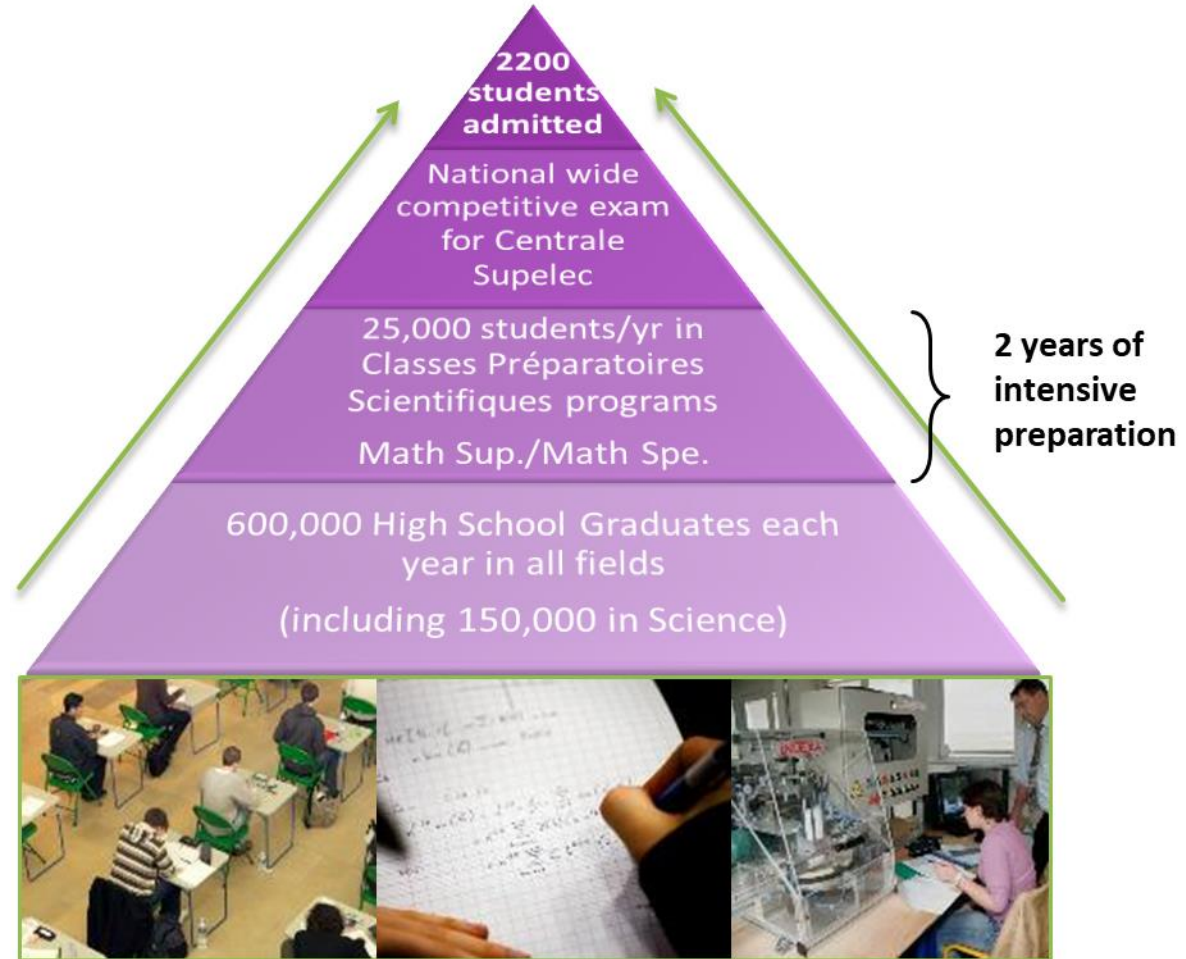
*The Anglo-saxon model*



# The Group Ecoles Centrale

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# Some well-known alumni ...



Marie Holive  
Centrale Lyon  
Executive Director  
of NBC Universal  
International  
Networks



Didier Lamouche  
Centrale Lyon  
CEO Oberthur Tech



Delphine Ernotte  
CentraleSupélec  
President France  
Télévisions



Benoit Potier  
CentraleSupélec  
CEO Air liquide



Michèle Bellon  
CentraleSupélec  
Former CEO of  
ERDF



Carlos Tavares  
CentraleSupélec  
CEO PSA



Jacques Maigné  
Centrale Lyon  
CEO Hutchinson



Jean-Loïc Galle  
CentraleSupélec  
CEO Thales Alenia  
Space



Cédric Gautier  
Centrale Nantes  
CEO Stellia Aerospace



Hubert Sagnières  
Centrale Lille  
CEO Essilor



André & Edouard Michelin



Marcel Schlumberger



Armand Peugeot

# The Group Ecoles Centrales Corporate Partnerships & networking

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The collage features logos for numerous major corporations, including:  
AREVA, AIRFRANCE, setec, COLAS, VEOLIA ENVIRONNEMENT, cea, Deloitte, LOUIS VUITTON, Carrefour, THOMSON REUTERS, OLIVER WYMAN, OCTO TECHNOLOGY, BCG, BNP PARIBAS, faurecia, SOCIETE GENERALE, AXA, Christian Dior, EADS, EDF, MAZARS, LEON GROSSE, subsea 7, solucom, BOMBARDIER, EY, EIFFAGE, TOTAL, Sopra group, NGE, SEB, unibail-rodamco, Capgemini Consulting, fives, VINCI CONSTRUCTION, AXKA, Kea & Partners, Roland Berger Strategy Consultants, GDF SUEZ, Schlumberger, SOLETANCHE BACHY, amadeus, SAINT-GOBAIN, Sagemcom, SAFRAN, neolane, KLEE GROUP, AIR LIQUIDE, DASSAULT AVIATION, McKinsey & Company, ERAMET, esi, FAYAT, orange, Netgem, GENERALI GROUP, BAIN & COMPANY, MICHELIN, atlantic, PSA PEUGEOT CITROËN, GROUPE Casino, Global Vision Systems, RATP, TRACTEBEL Engineering, GDF SUEZ, THALES, ROULLIER, CREDIT AGRICOLE, pwc, OC&C, accenture, Columbus Consulting, and RENAULT.

# The Group Ecoles Centrale Corporate Partnerships & networking

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**2 or 3 mandatory internships**

at least 28 weeks in companies and/or research laboratories

Hundreds of **conferences** and **projects in team**

**1 job networking session** organized every year in Italy



**2<sup>o</sup> JOB NETWORKING SESSION  
"JNS" DOUBLE DEGREE**

**28.05.2018**

MILAN

COPERNICO MILANO CENTRALE

Via Copernico, 38

**INDUSTRIAL MANAGER**  
**2018**

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CENTRALE NANTES  
CENTRALE MARSEILLE  
POLITECNICO MILANO 1863  
UNIVERSITY OF TRENTO - Italy  
UNIVERSITÀ DELI SVIZZERA IN ITALIA  
POLITECNICO DI TORINO

**JOB NETWORKING SESSION 2019**  
Ingénieurs double-diplômés T.I.M.E. entre la France et l'Italie

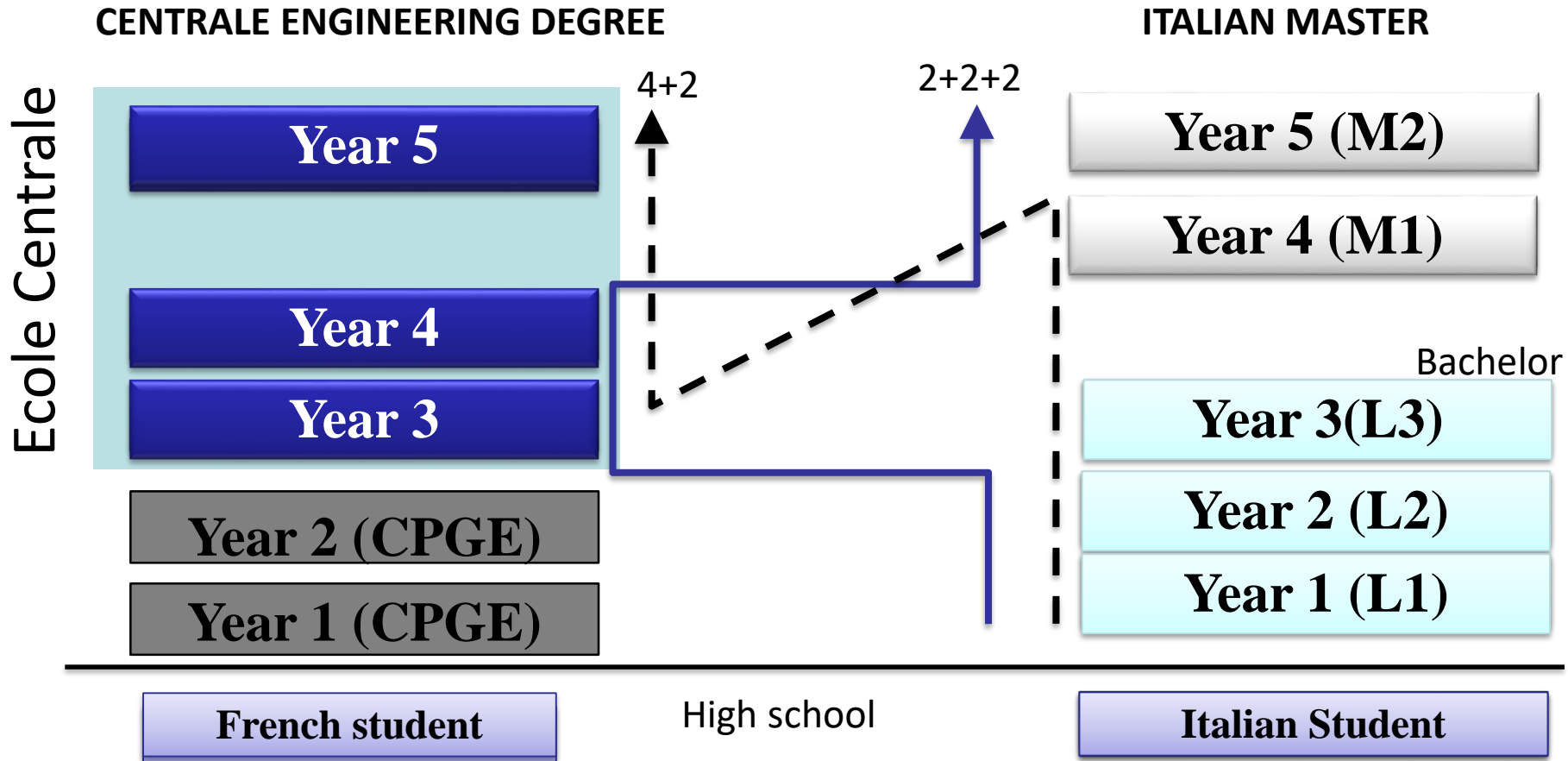
Sous le patronage  
du Consol Général de France  
avec la Chambre de Commerce France Italie,  
Business France, Confindustria.

CCI FRANCE ITALIE  
CAMERA DI COMMERCIO  
dal 1885

**29 mai 2019 - Castello del Valentino, Torino**

**JNS**

# Doppia Laurea schemes



# Common-core curriculum

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## High level training:

- Fundamental sciences:
  - Maths, physics
  
- Engineering:
  - Electronics, mechanics, computer science, material science, fluid mechanics...
  
- Humanities:
  - Economics, sociology, philosophy, languages and cultures
  
- Project management



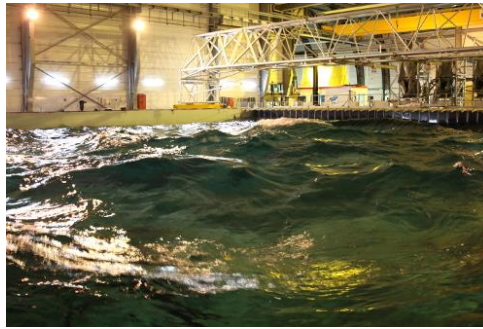
# Specializations

## Scientific fields

- Applied Mathematics
- Aeronautics / Aerospace
  - Computer Science
  - Telecommunication
- Physics / Applied Physics
- Bio-engineering/ biomedical
  - Nanotechnology
- Industrial Engineering
  - Civil Engineering
- Mechanical Engineering
  - Robotics
  - Electronics
- Process Engineering
  - Chemistry
- Urban planning...

## Instruction language

- French (mostly)
- English



Wave tank, Centrale Nantes



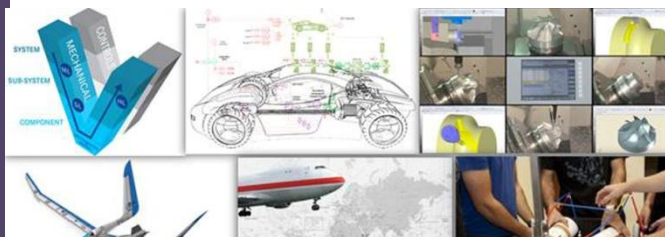
Clean room  
Centrale Lille



Anechoic wind tunnel  
LMFA, Centrale Lyon



Tree canopy in wind tunnel  
IRPHE, Centrale Marseille



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## Many student clubs and associations

- Students' Unions
- Junior enterprise, Job Fair organisation
- Sport clubs: Sailing, Rugby, Football, Basketball, Martial Arts,
- Arts clubs: Jazz, Chess, Theatre, Cinema, Dance
- Science & Technology clubs: computers, Fablabs, robotics,...
- Social responsibility : tutoring students from disadvantaged backgrounds
- International students' clubs
- and many more...

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# In Conclusion

Depending on your mobility, you get

- **Multi-disciplinary curriculum:** which helps to discuss with specialists and gives a broad overview of future challenging complex problems (sustainability, digitalization, climate evolution, energy management),
- **High-level scientific courses** in all fields of science, technology and engineering
- **Access to social sciences, foreign languages and humanities**
- **Soft-skill training:** leadership, management & innovation courses, team projects, possible involvement in student clubs
- **Corporate networking:** internships, job fairs, conferences, projects, round tables
- **Constant improvement in French proficiency:** 300 million French-speaking people in the world (many of them in Africa which is the fastest growing continent)
- **A passport** for an **amazing career**



**Benvenuti in Francia!**



# Thank you for your attention!

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[emmy.arts@centrale-marseille.fr](mailto:emmy.arts@centrale-marseille.fr)

[frederic.dorel@ec-nantes.fr](mailto:frederic.dorel@ec-nantes.fr)



# CentraleSupélec



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-Top tier French « Grandes Ecoles »

-Ecole Centrale Paris (1829) & Supélec (Ecole Supérieure d'Electricité - 1894)

➤ merged in Jan 1st 2015 to jointly create CentraleSupélec

covering all the fields of engineering

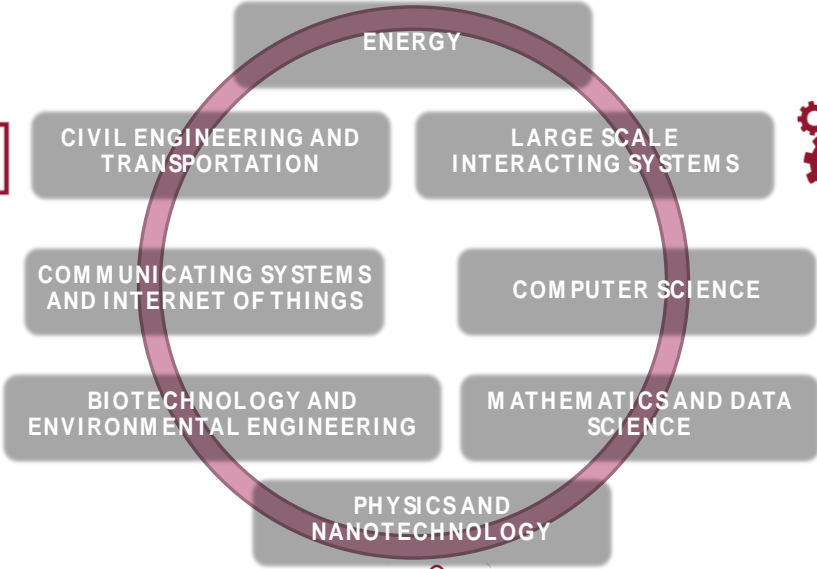
-Sharing **values** of scientific excellence, innovation, entrepreneurship, internationalization and leadership

-Founding members of Université Paris-Saclay

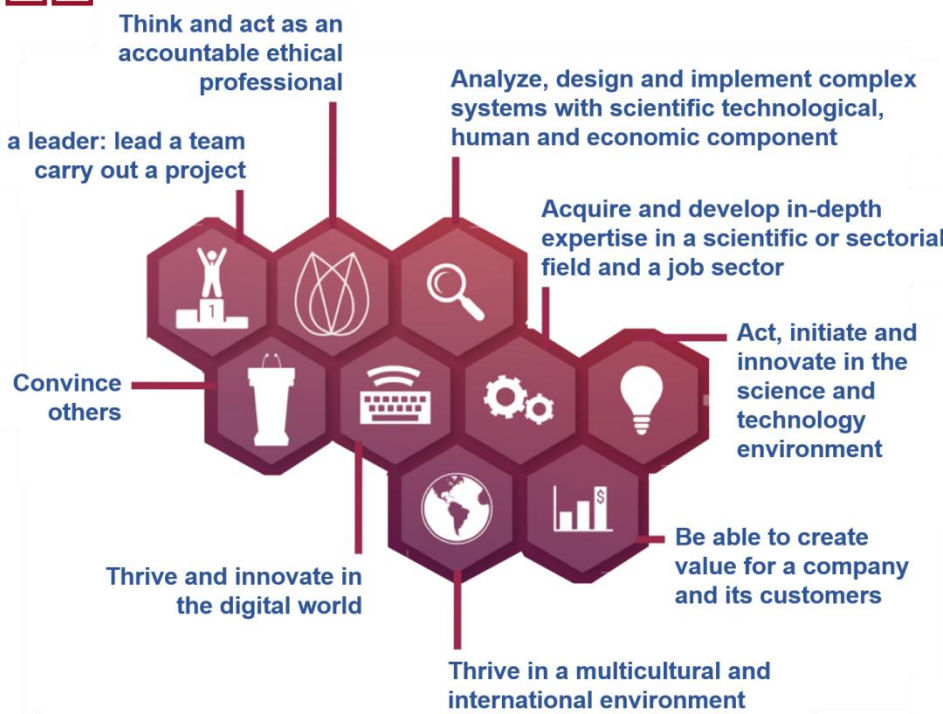
MULTI-DISCIPLINARY



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SKILLS



Energy	Biotechnology & environmental eng.	Mathematics & Data Science	Physics & Nanotechnology
Energy Resources [PS]	Environment / Sustainable Production [PS]	Mathematical Modeling & Simulation [PS]	Physics & Photonics [M]
Energy Networks & Smart Grids [PS]	Healthcare & biomedical services [PS]	Data & Information Science [PS/M]	Quantum Engineering [PS]
Energy transition [PS]			
Large-Scale interactive Systems	Internet of Things & Communication Systems	Computer science	Civil eng. & Transportation
Control Engineering [PS / R]	Smart Networks Systems [PS]	Software Design [PS]	Construction & Urban Engineering [PS]
Design and System Sciences [PS]	Connected Objects & Embedded Systems [R]	Artificial Intelligence [PS]	Mechanical & Aerospace Engineering [PS]
Supply Chain & Operations Management [PS]	Mobile Communicating Systems [PS]	Architecture of Information Systems [PS]	
		Cybersecurity [R]	

PS = campus of Paris-Saclay  
R = campus of Rennes  
M = campus of Metz

# Centrale Lyon

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A public school founded in 1857

- 1550 Engineering Students in Training (1/4 Female)
- 200 PhD Students, 235 Master Students
- 400 Staff,
  - 120 Academics,
  - 50 Full Researchers
- 24% Foreign Students from more than 50 Different Nationalities on the campus
- 12000 Alumni throughout the World



- Rhône-Alpes is France's **Second** most Important Region, economically
- **Lyon** is just **2 hours** from **Paris** by the TGV High Speed Train,
- **90mn** from the **Mediterranean coast**, and
- **90mn** from the **Alp Mountains** (The Rhône-Alpes Region has no less than **216 ski resorts**)

## 6 CNRS laboratories (National Scientific Research Center)

- Laboratory of Fluid Mechanics and Acoustics (**LMFA**)
- Laboratory of Tribology and Systems Dynamics (**LTDS**)
- Lyon Nanotechnology Institute (**INL**)
- **Ampère** Laboratory (Electrical Engineering)
- Camille Jordan Institute (**ICJ** : Mathematics)
- Lyon Research Center for Images and Intelligent Information Systems (**LIRIS**)

**Main partners :** AIRBUS, ALSTOM, CEA, CNES, DASSAULT AVIATION, DASSAULT SYSTEMS, DCN, EADS, EUROCOPTER, EDF, LAFARGE, MICHELIN, PSA, RENAULT, SAINT-GOBAIN, SNCF, SAFRAN, SNECMA, ST MICROELECTRONICS, ANDRITZ, IHI, THALES, THOMSON MULTIMEDIA, TOTAL, NAVAL Group.....



# Centrale Nantes

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Tradition dating back to 1919



Among the best "French Engineering Schools" / 350+



2 150 graduate students



37,000+ Centrale Groupe alumni



550 Researchers and teaching staff



270 PhD students



40-acre campus in Nantes



*Industrial environment*

Nantes & Saint-Nazaire Airbus factories



STX Ship building

**6 Laboratories associated to CNRS (A or A+) for a cutting edge research**

SHARE THE FUTURE



- **Fluid Mechanics Laboratory (LHEEA):** Hydrodynamics & Ocean Eng., Energetics, Atmosphere Dynamics, Internal combustion engines
- **Laboratory of Digital Sciences of Nantes (LS2N):** Cybernetics (Robotics, Signal & Automatics, Electronic Systems, Telecom & Radar) and Computer Science
- **Research Institute of Civil Engineering & Mechanics:** Metallic & composites assemblies, computational mechanics, polymers...
- **Laboratory for Mathematics "Jean Leray":** non-linear PDE, scientific calculus, approximation, probability statistic
- **Urban Environment and Architecture (CERMA):** modeling & simulation of natural phenomena, design and characterization of ambiance
- **High Performance Computing Institute (ICI):** a mid-sized computing center of 6000 cores, one of the most powerful French regional centers.





## Centrale Nantes specialisations and masters (in english)

SHAKE THE FUTURE.



- Control, embedded systems, image processing
- Robotics
- Virtual reality, computer science
- Atmosphere, water and urban environment
- Ocean engineering
- Civil and environmental engineering
- Aeronautics
- Materials and Composites
- Energetics and propulsion
- Industrial engineering
- Manufacturing
- Health

# Centrale Marseille

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*Marseille, the 2<sup>nd</sup> biggest city in France*

- 860 000 people
- 3000 researchers
- 2<sup>nd</sup> pole of public research in France
- 100 000 students
- 8 research laboratories in co-supervision : Chemical Engineering, Chemistry, Economics, Informatics and Systems, Maths, Mechanics (2), Physics





## Specializations :

- **DIGITAL-e → Consulting, Computer Science & Data Science**
- **GREEN → Chemistry, process engineering and sustainable processes**
- **MECA → Mechanics**
  - Industrial Acoustics,
  - Modelization of Structural and Material Mechanics,
  - Fluids : energy, transport, environment, health,
  - Marine Engineering
- **MMEFI → Mathematics, Management, Economics & Finance**
- **PICSEL → Photonics, Image, Signal and Communicaton**
- **Complex System Engineering (Master in English)**
  - Environmental Engineering
  - Biomedical Engineering

# Centrale Lille

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## ✓ 270 People

- 31 Professors
- 49 Associate Professors
- 10 CNRS
- 120 PhD Students
- 27 Postdocs / Research engineers / ATER
- 35 Invited Profs / PAST (7 FTE)
- 17 Teaching Assistants



## ✓ 1500 Students

- 1273 Engineering *Diplôme d'Ingénieur*
- 69 Master Sciences M2R (Research)
- 120 Doctoral Ph.D programs

## ✓ 25 M€ Total budget

## ✓ 88 International partnerships

## ✓ 200 Company partnerchips

# Centrale Lille

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## SUSTAINABLE CONSTRUCTIONS & ENERGY

- Constructions and sustainable materials
- Energy and smart grids

## SMART SYSTEMS AND ENVIRONMENTS

- Smart systems and advanced networks
- Future networks and smart environments

## INDUSTRY FOR THE FUTURE

- Smart industries
- Sustainable conception and productions

## FROM STRATEGY TO DATA MANAGEMENT

- Data science and Artificial intelligence
- Modelisation and industrial architecture



Involvement in 6 Laboratories



*Fundamental informatics  
Computer Engineering  
Automatic Control  
Signals*



*Micro-Nano-Technologies  
Functional Electronics  
Acoustics & Optoelectronics  
Microfluidics*



*Electrotechnics  
Power Electronics*



*Catalytic  
Process Engineering  
Solid chemistry*



*Civil Engineering  
Material Science  
Mechanics*



*Fluid Mechanics*