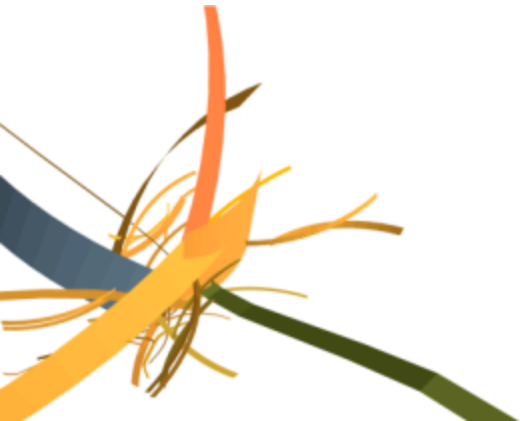




Centrale Nantes Excellence in Science & Engineering for the corporate world

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■ Centrale Nantes



Nantes : the French Atlantic Coast

- Population: 1 Million (area)
- 5th largest city in France
- 45,000 students
- 2 hrs from Paris by TGV



■ Life in Nantes



- > European Green Capital 2013
- > Top city for quality of life

- > *Folles Journées de Nantes: Classical music:*

- Created in Nantes 2000
- 2000-2004 large success in Nantes
- Then 2005-2012
- Tokyo, Bilbao, Brazil , ... Etc.



- > Author Jules Verne was born in Nantes (1828)

■ Life in Nantes

■ *Machines de Nantes*



■ LU biscuit manufacture

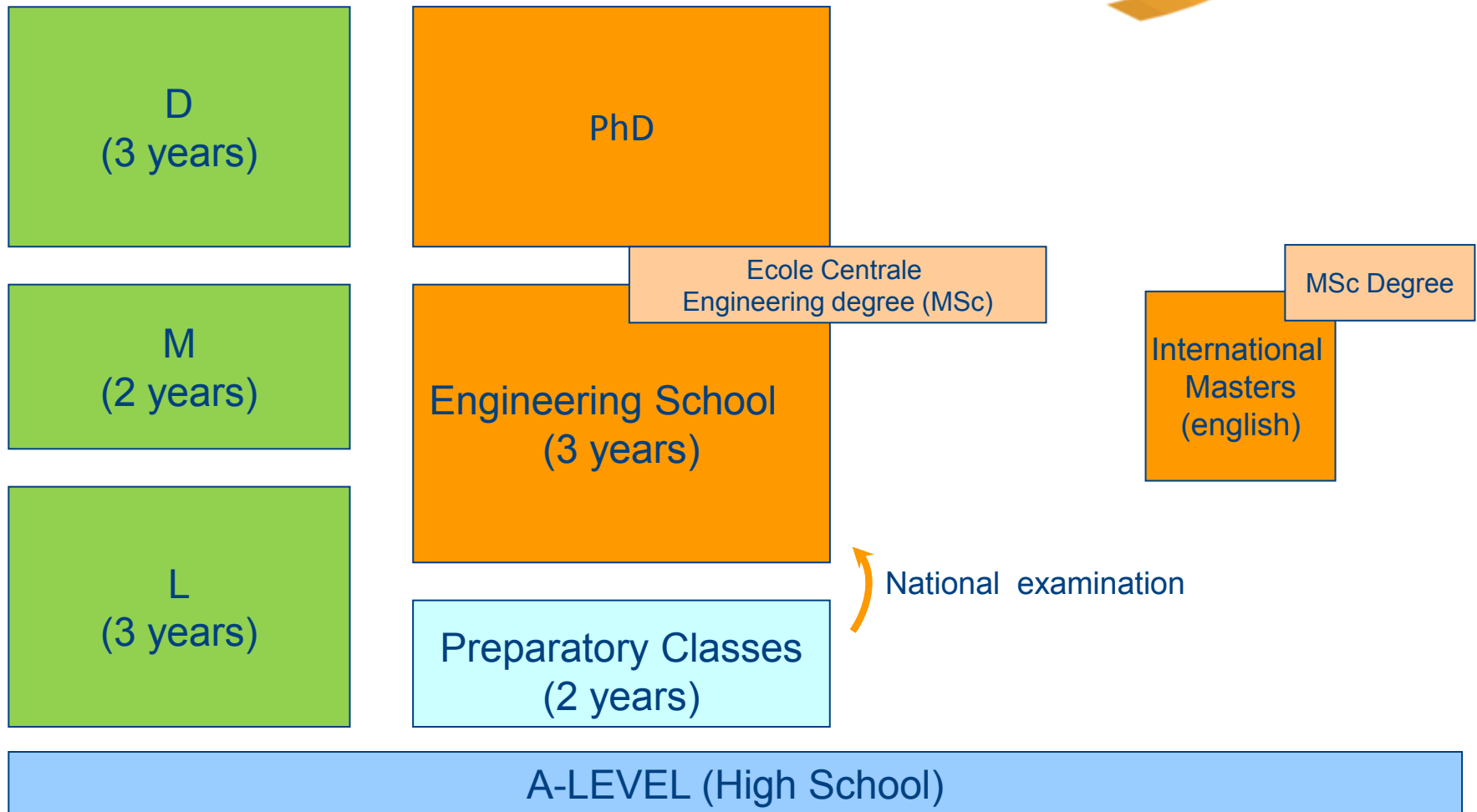




■ Engineering Schools in France

- Different from universities (smaller number of students, selectivity is high)
- Theoretical knowledge in Univ., more practical and companies related in GE
- Higher employability rate & salary
- After 2 years of « Classes Préparatoires »

■ University / “Grandes Ecoles”



■ Engineering Schools in France

- Develop management & social skills with a generalistic knowledge of engineering sciences
- Work by projects (25% of the cursus)
- Close to the compagnies
- Strong involvement of students in the associative life : all students are part of at least one association : team work, responsibilities


■ Centrale Nantes



Centrale Nantes Key Figures

- ✘ Founded 1919 – Public Engineering school (Ministry of HE&R)
- ✘ Engineering, Masters & PhD
- ✘ 2000 graduate students per year
- ✘ 11000 alumni (9000 engineers)
- ✘ 550 Professors and researchers
- ✘ 250 external lecturers from industry
- ✘ 150 administrative and technical staff
- ✘ 30% of international students (+50% since 2008)
- ✘ 10 international master degrees (in english)
- ✘ 3 Erasmus Mundus Master degrees, 1 Erasmus Mundus Doctorate
- ✘ 8 EMA2 Partnership as partners, 2 as Coordinator (India)
- ✘ 2 EMA3
- ✘ 100% of students study abroad (double degree, internship or exchange)
- ✘ 11th Engineering school in France (among >300)





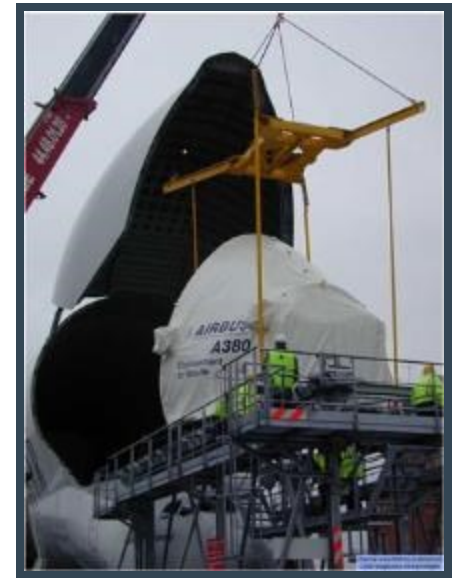
■ Centrales Nantes assets for International development

- Nantes region : a lot of industries, very dynamic
- Labels of excellence for the academic offers
 - Diplôme d'ingénieur, Erasmus Mundus Masters and Doctorate, PhD
- Highly performant labs (ranked A) and unique experimental platforms
- Rich networks of partners
- Groupe of Ecole Centrale (4 in France + Beijing)

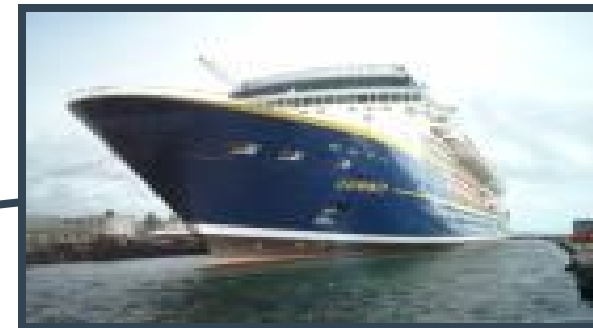
■ The Nantes industrial environment

■ Airbus Nantes and Saint-Nazaire

- > Aircraft manufacturer – Airbus A380, the largest one in the world



- > Ship manufacturer
 - Queen Mary 2



■ Industrial Partners

Allianz 

altran



 **DAHER**

 **EADS**

 **EDF**

 **faurecia**

 **GDF SUEZ**

Michelin
Saint-Gobain

...

 **IBM**

 **MAZARS**

 **orange™**

 **GROUPE ATLANTIC**

 **Eni** **Saipem s.p.a.**

 **SNCF**

 **QUILLE**

 **DCNS**


SYNTEC-INGÉNIERIE

 **Technip**


VEOLIA
ENVIRONNEMENT

 **Rte**
Réseau de transport d'électricité

 **VINCI**

 **Sopra**
group



■ Working with industries

Contracts & projects through competitiveness clusters and research centers

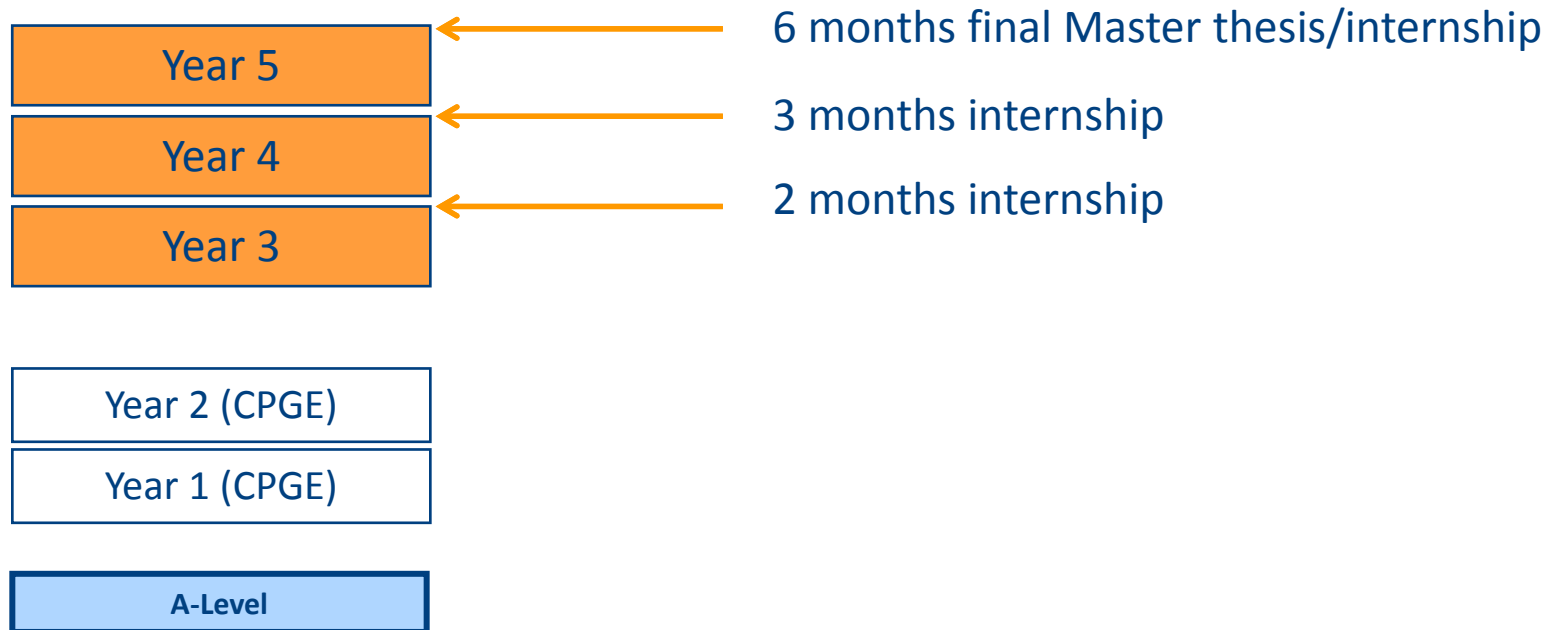
- More than 100 contracts/year (research collaborations, transfer of technology, experimental or numerical tests, consulting...) : aeronautics and space, construction & public works, offshore operations, automobile, electronics, mechanics, ship industry, robotics,...
- Industrial chairs (Prof. Position)
- Pole EMC2 : finance projects for companies&research labs on material sciences
- Institut de Recherche Technologique « Jules Verne » = advanced technologies for manufacturing (composites, metallic and hybrids structures), applied to aeronautics, naval research, energy and transport



■ Networking: professional development of our students

- Professional experience in student-run organisations
 - > « Ingénieurs sans Frontières » Association
 - > Junior Entreprise « Centrale Nantes Etudes »
 - > Annual Recruitment Fair (Forum Atlantique)
- On campus: talks and meetings with company managers « Partners days »
- Projects given by companies
- Internships

■ Internship





■ Networks

■ Regional :

- > PRES L'UNAM (Higher Education and Research Regional Network) : Universities and « Grandes Ecoles » of the Loire region
- > Association with Audencia, top Business&Management school

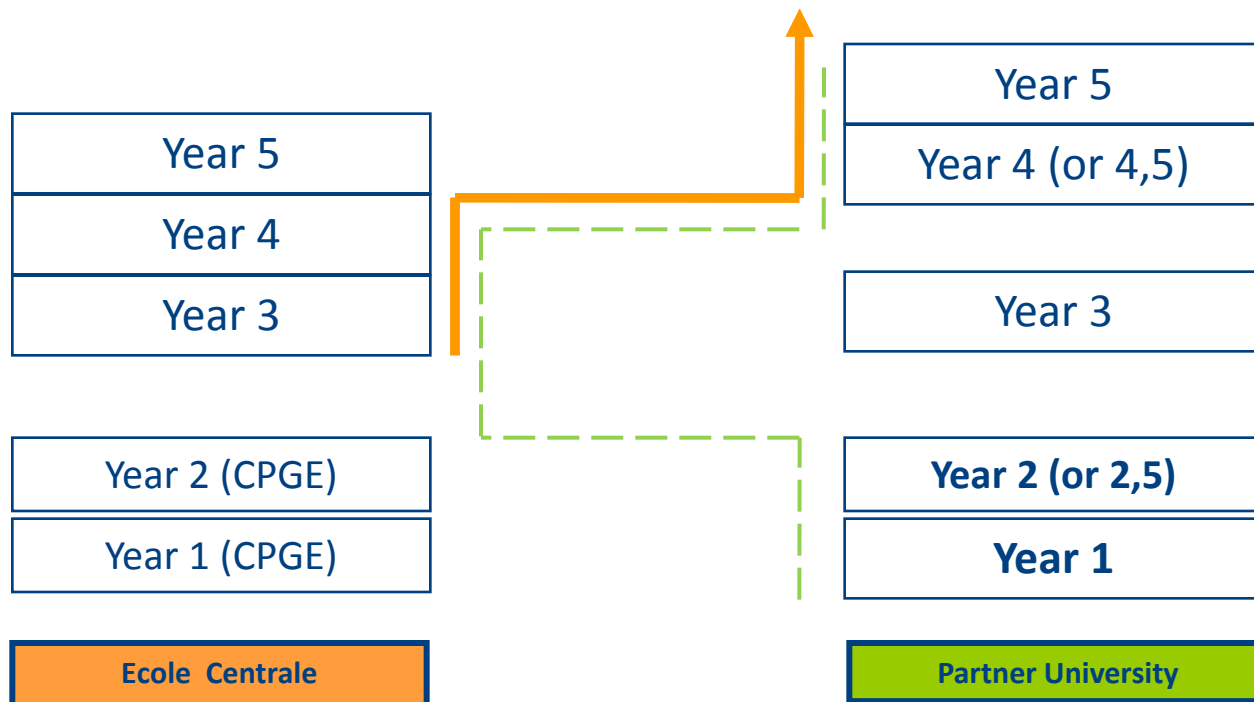
■ International

- > RMEI (Mediterranean area), Magalhães (Latin America)
- > TIME (Top Industrial Managers for Europe) : Double Degrees Mobilities among the best technical universities in Europe (and overseas)

■ Double Degree « T.I.M.E. »

ECN Engineering Degree + Partner University

2 years abroad = real cultural and academic experience



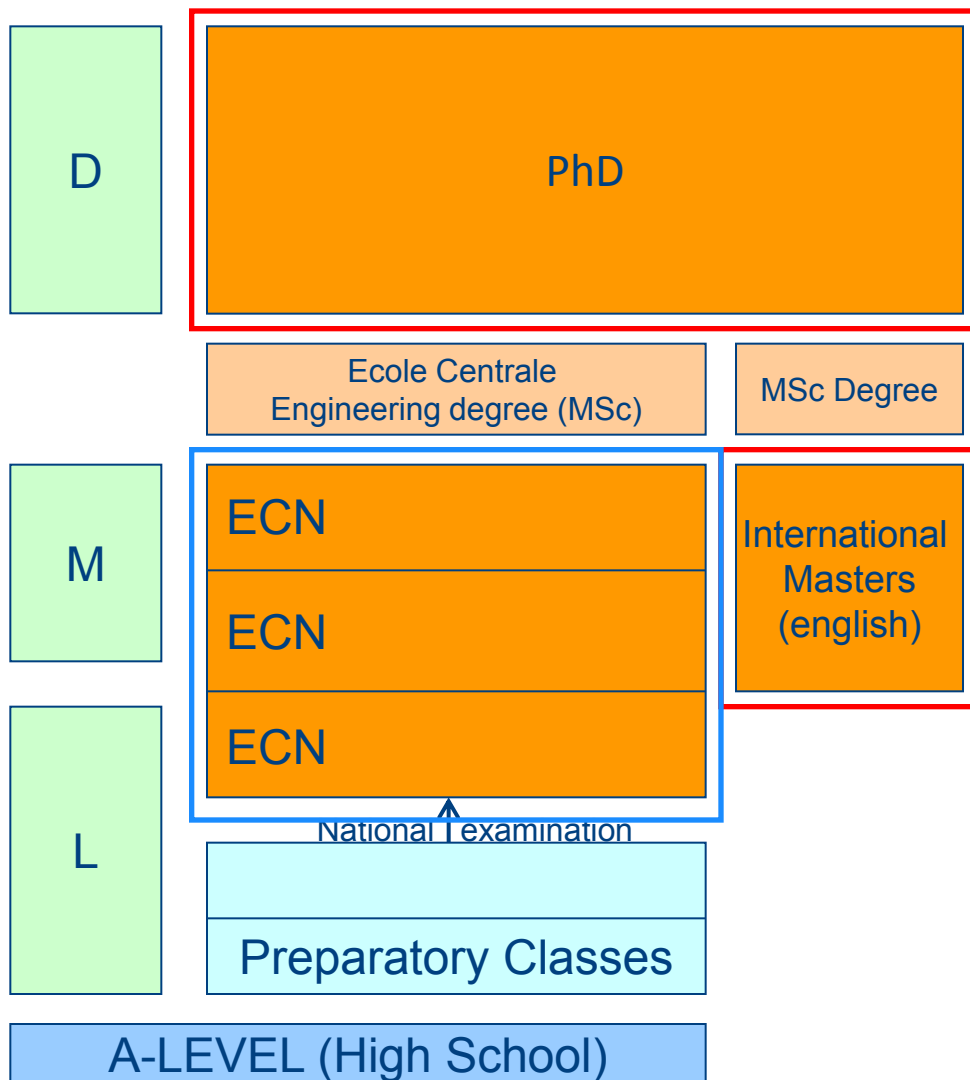
■ Networks for mobility



- *ERASMUS for exchange mobilities*
- Exchange programmes with Latin America: BraFitec, ArFitec , MexFitec, ChilFitec, Science without Borders
- CREPUQ with Québec (Canada)
- Programme "4+4" Écoles Centrales / China + CSC programme
- Eiffel grants of Excellence (Engineering degree + PhD)

...

Centrale Nantes programs



- Centrale Nantes General Engineering Master's Degree
- 10+3 Masters – Master's Degree of Science and Technology
- 2 PhD Degrees of Science and Technology





Engineering degree



✘ **3 semesters of basic sciences** (Mathematics, Numerical analysis, Mechanics, Automation, Physics,...) & **Social Sciences/humanities** (Communication, Economy, Finance, Project Management, Entrepreneurship, Languages, Sport, ...) + **1 semester of transversal modules** : - Technology and automobile disciplinary

- Web strategy
- Virtual engineering
- Aeronautics
- Composit structure
- Water engineering
- Renewable energy

✘ **1 year of speciality :**

- System engineering, Image and Signal processing
- Computer Science
- Product Design and Industrial Systems Development
- Materials Engineering
- Computational Structural Mechanics
- Civil and Environmental Engineering
- Energetics
- Hydrodynamics and Ocean Engineering

■ 10 International master degrees

✘ Urban Environment:

- Atmosphere, Water and Urban Environment

✘ Applied Mechanics :

- Computational Structural Mechanics
- Design of Systems and Products
- Material Process & Technology of Composites
- Hydrodynamics & Ocean Engineering
- Energetics & Propulsion

✘ Control Engineering & Production Systems :

- Automatic Control, Signal, & Image
- Advanced Robotics
- Real time, Steering and Supervision

✘ Civil Engineering

- Civil Engineering

■ 3 Erasmus Mundus MSc

- EMARO : Advanced Robotics (coordinator)
- Computational Mechanics (UPC, Spain)
- EMShip Advanced Design: naval architecture (ULG, Belgium)
 - > Offering scholarship for EU students also (tuition fees + insurance/travel, monthly allowance 500e/month) – *deadline 20th May for CM*

■ PhD - Research

- PhD = 3 years
- 2 “Doctoral Schools”:
 - > SPIGA : Science engineering, geosciences and architecture
 - > STIM : Sc&T of information and Mathematics



■ PhD - Research

5 Laboratories associated to CNRS (A or A+)

- ✘ **Nantes Research Institute on Cybernetics & Communications (IRCCyN)**: Robotics, signal & automatics, electronic systems, telecom & radar
- ✘ **Fluid Mechanics Laboratory (LHEEA)**: Hydrodynamics & Ocean Eng., Energetics, atmosphere dynamics, internal combustion engines
- ✘ **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 characterisation of ambiance



Research areas

- Mechanical Engineering
- Computational Structural Mechanics
- Metallic Assemblies and Complex Composites
- Civil Engineering and Environment
- Hydrodynamics – Energy & Propulsion
- Control and Applied Computer Science
- Advanced Robotics
- Urban Environment : Atmosphere, Water and Urban Environment
- Design of Systems and Products
- virtual engineering
- integration of manufacturing processes
- Control, Signal processing
- Embedded Computer Science & Production Systems
- Information technology



■ 5 experimental Platforms

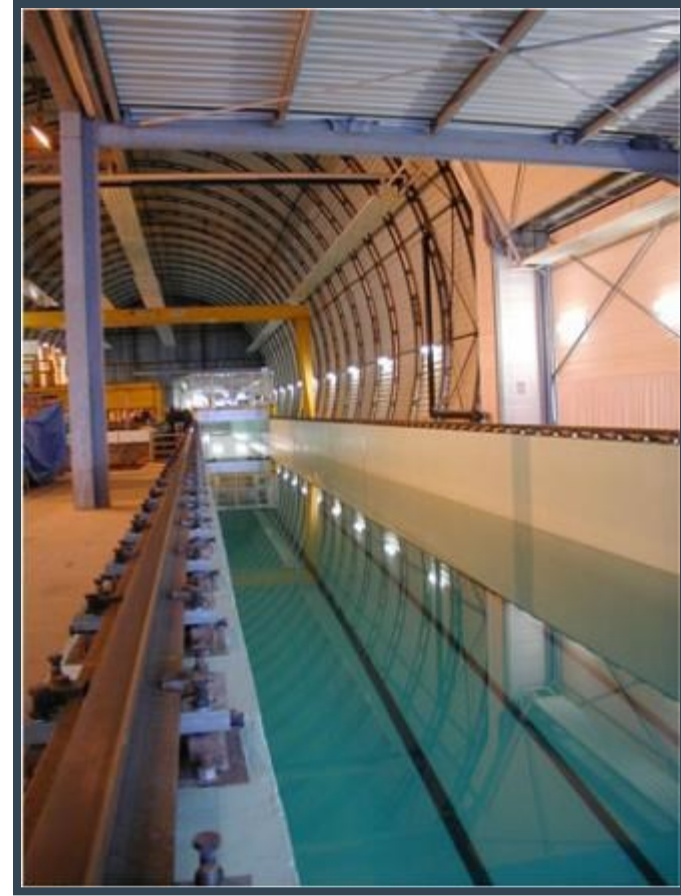
- Hydrodynamics
- Dynamics (Materials, Crash tests)
- High Speed Machining
- Durability mechanics
- Virtual reality



■ 5 experimental Platforms



Wave tank: 30m wide, 50m long, 5m deep





Centrale
Nantes

SEMREV : Marine Test site

- Fitted wave energy test facility : test and improve the efficiency of Wave Energy Converters for marine renewable energies industries in the world
- Off shore system linked to the shore based station (Le Croizic)
<http://www.semrev.fr/en>



■ International Relations Office

- 8 people team + 14 academic tutors for In & Out mobilities
- Developing international exchange programs & agreements
- Developing Erasmus Mundus projects
- Promoting international courses
- Supporting French students planning to study abroad
- Providing international incoming students with guidance and support



■ European Erasmus Mundus

Centrale Nantes N° 1 in France



Education and Culture

Erasmus Mundus

■ 3 Erasmus Mundus Master's (Action 1)

- > Advanced Robotics
- > Computational Mechanics
- > EMShip Advanced Design



■ 1 Erasmus Mundus Joint PhD (Action 1)

- > Computational Mechanics

■ 13 Erasmus Mundus Partnership (Action 2) – 3 as coordinator

- > INDIA, ASIA, CHINA, BRAZIL, JAPAN-KOREA, NORTH AFRICA, CENTRAL ASIA, EASTERN EUROPE

■ 2 Erasmus Mundus Action 3

■ Incoming organisation

- Welcoming international students
 - > Airport
 - > Students residence on campus: possibility of sharing apartment with French classmate (**Priority access for international students**)
 - > Administration, Visa and Permit Stay, Bank,....
 - > Visit of the schools
- Welcoming week
- Introduction to the various student associations
 - > Sports and other clubs:
 - Jazz, Chess, Theatre, Cinema, Dance, etc.
 - Sailing, Rugby, Football, Basketball, Martial Arts, etc.
 - > International Student Association



■ International students in Nantes







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