



UNIVERSITÀ  
DEGLI STUDI  
FIRENZE

**DIEF**  
Dipartimento di  
Ingegneria Industriale

# Department of Industrial Engineering University of Florence



**[www.dief.unifi.it](http://www.dief.unifi.it)**

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# University of Florence at a glance

- Founded in 1321 (one of the 20 oldest in the World), supported by the Medici family
  - Originally called “*Studium Generale*”
  - Giovanni Boccaccio (author of “*The Decameron*”) is one of the first professors, teaching the “*Divine Comedy*” by Dante Alighieri
- Nowadays, a modern university covering almost all the main study areas
- 1.665 professors and researchers, 1.500 technicians and administrative personnel, more than 1.600 PhD students and research fellows
- 50.000 students, more than 9000 graduated students per year
- ≈ 320 scientific partnerships with foreign universities



# University of Florence at a glance

- Organized in **10 Schools**
  - *Agriculture, Architecture, Economics, Education and Humanities, Engineering, Law, Human Health Sciences, Mathematics, Physics and Natural Sciences, Political Science, Psychology*
- Scientific research is carried out in the **21 Departments** of the University, grouped into **5 major areas**:
  - *Social Sciences, Humanities, Scientific, Technological, Biomedical*
- In the recent past, ranked top among Italian Universities in the distribution of national research funds





# The School of Engineering

## ➤ One of the largest Schools in the University

- More than 5000 students
- 160 professors and researchers
- Academic courses: 5 First BSc, 10 MSc, and 3 PhD Schools



[www.ingegneria.unifi.it](http://www.ingegneria.unifi.it)

## ➤ Structures and facilities

- Office building → Historical complex of S. Marta (center of Florence – in the picture)
- Modern classroom buildings nearby the S. Marta complex
- More than 50 dedicated laboratories in the surroundings of the complex or in the industrial district of Florence (high installed power experimental labs)



# The Dept. of Industrial Engineering (DIEF)

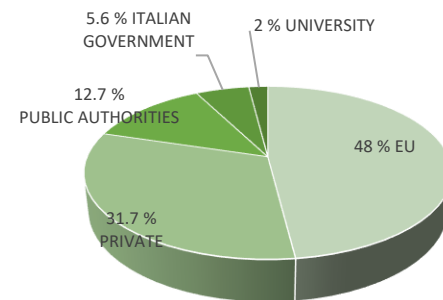
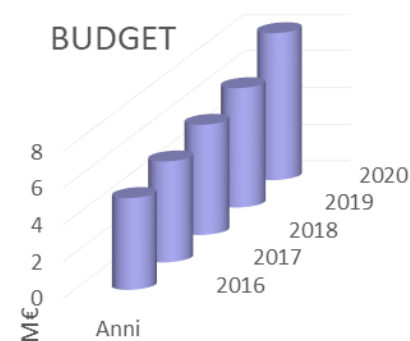
- One of the largest Departments in the University in terms of personnel, research activities and funding
- Created in 2014 after the global reform of Italian University as the fusion of the former Depts. of Energy Engineering and Mechanical Engineering

## ➤ Personnel (end of 2020):

- Full Professors 16
- Associate Professors 31
- Post Doc 64
- PhD Students 85
- Other Contracts 28
- T/A Staff 26

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- **Total 250**
- Students: ≈1700



# Teaching at DIEF

## ➤ ***BSc in Mechanical Engineering***

- Curricula: Mechanical, Biomedical, Energy, Electric

## ➤ ***BSc in Management Engineering***

- Curricula: Industrial path, Industrial Informatics path, Professionalizing address

## ➤ ***MSc in Mechanical Engineering***

- Curricula: Mechanical Design, Turbomachinery, Production, Terrestrial Vehicles, Railway Vehicles, Robotics, Aerospace Propulsion, Industrial Engineering Models

## ➤ ***MSc in Energy Engineering***

- Curricula: Turbomachinery, Energy Conversion

## ➤ ***PhD in Industrial Engineering***

- Curricula: Energy and innovative industrial technologies, Design and development of industrial products and processes, Industrial Engineering and Reliability, Science and Engineering of Materials





# Teaching at DIEF: Outcome...

## ➤ **MSc in Mechanical Engineering**

- The stable occupation rate after three years from graduation is 99.3 %

## ➤ **MSc in Energy Engineering**

- The stable occupation rate after three years from graduation is 100 %

## ➤ **PhD in Industrial Engineering**

- About 25 new PhD Students every year, 85% of scholarships paid by Private Companies
- Most of PhD graduates from DIEF are hired by primary Multinational Companies





# Main industrial partnerships of DIEF



GE Oil & Gas



Ferrari



PIAGGIO



YANMAR

Avio Aero

A GE Aviation Business

FCA

FIAT CHRYSLER AUTOMOBILES



Enel



Termomeccanica Group



MAGNETI  
MARELLI



AnsaldoEnergia



Beta  
betamotor.com



PEUGEOT



DAIMLER



YAMAHA



PRAMAC  
GROUP



OIL & GAS



LOMBARDINI  
A KOHLER COMPANY



CST  
Compression Service Technology



VM MOTORI



FERROVIE  
DELLO STATO  
ITALIANE



ROPATEC  
Vertical energy



MILLENIUM  
The sail technology leader



ONE  
SAILS



MESSER  
Gases for Life



DORIN  
Innovation



enatek



ZONGSHEN



Continental



BOSCH



CRF

CENTRO  
RICERCHE  
FIAT





# Research at DIEF

- 4 European research and innovation projects are currently coordinated by DIEF
- In 10 European research and innovation projects DIEF is a partner
- National program on Sea Technologies: DIEF coordinates a 13 Million Euro Project named SUONO
- DIEF is coordinator in 1 Marie Curie Skłodowska European projects
- DIEF is active in the European LIFE program
- DIEF is also active in the Erasmus+ program

# Research at DIEF

- More than 50 laboratories working on high level researches on different fields

*from testing of internal combustion engines...*



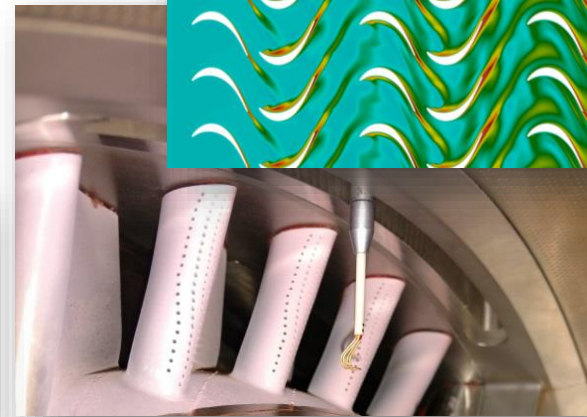
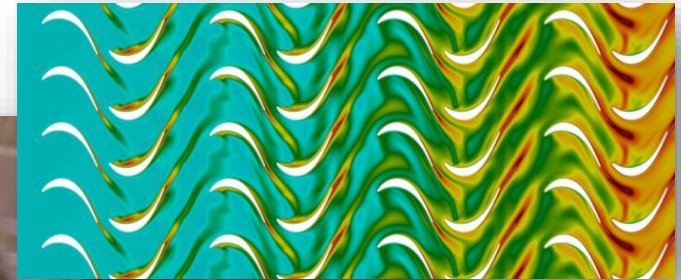
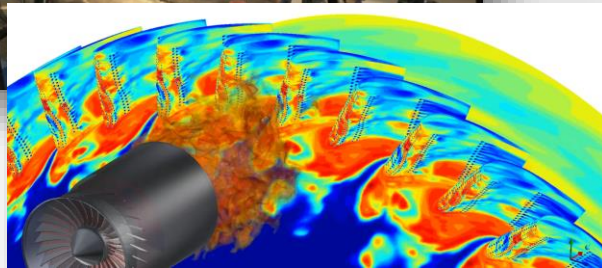
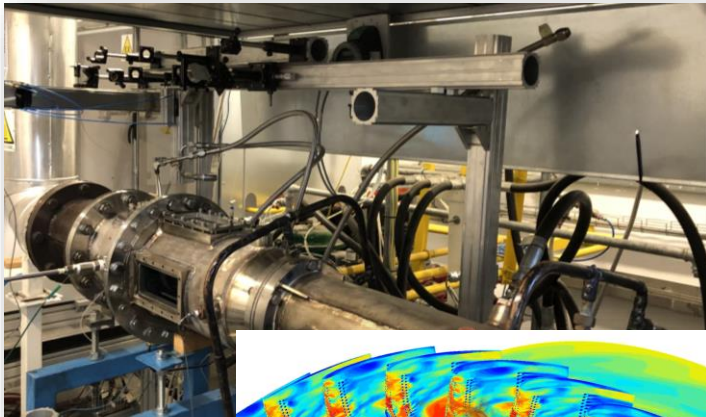
*...to efficiency measurements in gas turbine components using conventional and laser diagnostic approaches*



# Research at DIEF

- More than 50 laboratories working on high level researches on different fields...
  - *With a strong synergy between experiments and numerical modelling and simulation*

*from combustion diagnostics....*



*.... to aerothermal characterization of blades and vanes for gas turbines*



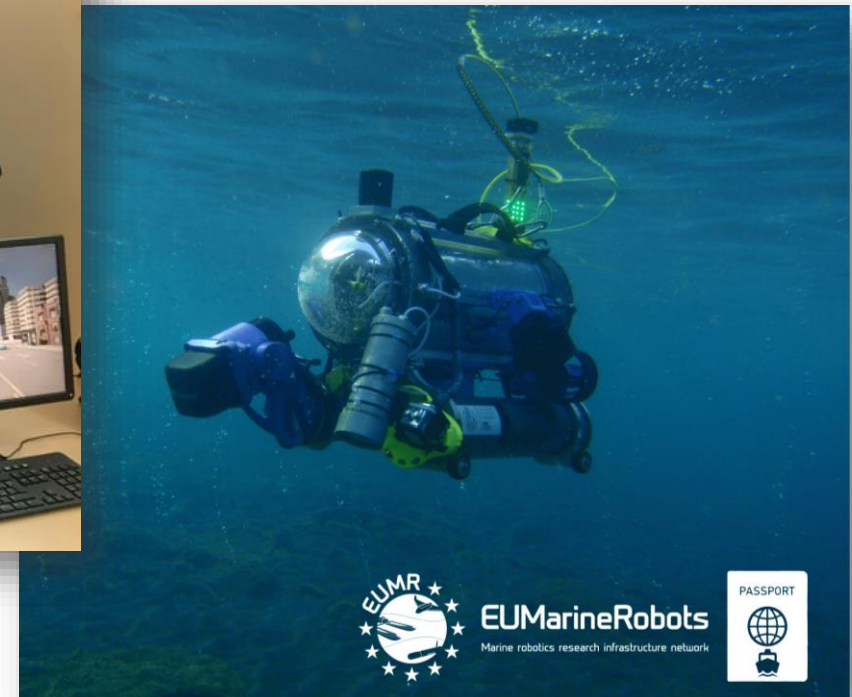
# Research at DIEF

- More than 50 laboratories working on high level researches on different fields...

*from the development of technologies for road traffic safety...*



*.... to robotics for subsea applications*





## Student Competitions

- DIEF is active in the International “Formula Student” and “Formula SAE” student competitions where students are requested to design, build and run a race automobile
- DIEF is also active in the International SAUC-E underwater robotics student competitions where students are requested to design, build and operate underwater autonomous robot vehicles

# “Firenze Race Team” during the one of the last race in Most (Czech Republic, July 2021)





## Annual budget

- DIEF is very active both in Industrial Research funded by private companies and Basic Research funded by public institutions
- The annual research budget of DIEF is in the range of 8-10 Million Euro which corresponds to a rate of about 215,000 Euro for each permanent staff unit each year
- This figure of merit places DIEF at the top ranking of European Engineering Departments