## DOCTORAL PROGRAMME
### IN
### INDUSTRIAL ENGINEERING
*Director prof. Giovanni Ferrara*

XXXVIII cycle – academic year 2022/2023

### TECHNOLOGICAL AREA

<table>
<thead>
<tr>
<th>ADMINISTRATIVE OFFICE</th>
<th>Department of Industrial Engineering Florence (DIEF)</th>
</tr>
</thead>
</table>

### CURRICULA

1. Energy and Innovative Industrial and Environmental Technologies
2. Design and Development of Industrial Products and Processes
3. Industrial Engineering and Reliability
4. Science and Engineering of Materials

### POSITIONS AVAILABLE: 18

- Positions with scholarship: 15
- Reserved position: 1
- Positions without Scholarship: 2*

* standard ranking only

### RANKING LIST FOR STANDARD POSITIONS SCHOLARSHIPS AVAILABLE: 1

- University of Florence

### RANKING LISTS FOR POSITIONS WITH SPECIFIC RESEARCH TOPICS SCHOLARSHIPS AVAILABLE: 14

1. Experimental analysis of gas turbine combustion process in presence of non-conventional flame concepts and variable hydrogen content fuels
2. Development and validation of high-fidelity CFD models for the investigation of combustion process in gas turbines based on non-conventional flame concepts using variable content fuels
3. Development of Methods and Technologies for Diagnostics and Online Identification of Sustainable Mobility Solutions based on the Integration of multi-physical and multi-sensory data
4. Analysis and design of high Mach centrifugal compressors
5. Geothermal energy in support of renewables: helping the ecological transition
6. Research and development of tools for the digital modelling, the simulation and the multi-physics geometric optimization
7. Research and development of CAD, RE and AM-based methodologies for a personalized approach to patient care
| 8. | Modeling and optimization of machining and additive processes |
| 9. | Advanced manufacturing approaches for aerospace components |
| 11. | Studies on the dynamic characterisation of steering boxes for self-driving vehicles |
| 12. | Development of energy optimization strategies for railway applications |
| 13. | Research and development in multi-modal behaviour models for Human-Robot Interaction and social decision making in biomedical contexts |
| 14. | Research and development in Ultra-portable AI-based sensor systems for biomechanical and neurophysiological assessment in neurodegenerative disorders |

**RESERVED POSITION: 1**

Reserved position for SUPER-CROMO s. r. l. employees

**STUDY/RESEARCH PERIODS ABROAD**

1-3 months

**DOCUMENTS REQUIRED FOR THE ADMISSION**

- Copy of the Identification Document
- Self-declaration for qualifications obtained in Italy (laurea Triennale, Specialistica o Magistrale o ciclo unico) with a list of all exams taken and their marks, title of the thesis and graduation mark (download the form [here](https://www.phdingind.unifi.it/vp-43-topics-xxxviii-cycle.html), make sure you fill in all the fields)
- Qualifications obtained abroad (Bachelor’s and Master Degrees or combined cycle Degree) with a list of all exams taken and their marks, title of the thesis and graduation mark.

*The same documentation except for the final mark must be submitted by those who will graduate within the 31/10/2022*

**DOCUMENTS REQUIRED FOR THE EVALUATION**

**MANDATORY**

- Curriculum Vitae
- Research project

**OPTIONAL**

- Abstract of the MSc degree Thesis
- Scientific publications
- Any other additional qualification document

**RESEARCH PROJECT**

The research project must be written in Italian or English in NO MORE than 12,000 characters including spacing, abstract, introduction and references. The candidate can apply for several rankings by submitting a specific research project for each ranking (clearly state the reference to the chosen thematic). Candidates who apply for standard ranking need to submit a project related to one of the thematics listed at [https://www.phdingind.unifi.it/vp-43-topics-xxxviii-cycle.html](https://www.phdingind.unifi.it/vp-43-topics-xxxviii-cycle.html)

**INTERVIEW MODE**

Remotely (Videocall)

The interview can be conducted in English language
<table>
<thead>
<tr>
<th>Parameter</th>
<th>Minimum Score</th>
<th>Maximum Score</th>
</tr>
</thead>
<tbody>
<tr>
<td>Curriculum vitae; publications, other qualification documents</td>
<td>10/120</td>
<td>15/120</td>
</tr>
<tr>
<td>Evaluation of the research project</td>
<td>50/120</td>
<td>65/120</td>
</tr>
<tr>
<td>Applicants who obtain a mark of at least 60/120 according to the minimum score for each parameter will be admitted to the interview.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Interview: discussion of the research project and publications (if any)</td>
<td>20/120</td>
<td>40/120</td>
</tr>
</tbody>
</table>

Eligibility is achieved with a minimum score of 80/120

Further information available at the following web page: https://www.phdingind.unifi.it/index.html

<table>
<thead>
<tr>
<th>EXAMINATION SCHEDULE</th>
<th>DATE</th>
<th>TIME</th>
</tr>
</thead>
<tbody>
<tr>
<td>INTERVIEW</td>
<td>August 25th 2022</td>
<td>9:00 a.m.</td>
</tr>
</tbody>
</table>

The list of candidates admitted to the interview and the final ranking will be published at the following web page: https://www.unifi.it/p12202.html