UNIVERSITÀ DEGLI STUDI FIRENZE

DOCTORAL PROGRAMME
IN
INDUSTRIAL ENGINEERING

Director prof. Giovanni Ferrara

XXXVIII cycle – academic year 2022/2023

TECHNOLOGICAL AREA	
ADMINISTRATIVE OFFICE	Department of Industrial Engineering Florence (DIEF)
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	**5 -** University of Florence **9 -** Department of Industrial Engineering **Thematics:** **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 **10.** Development of engineering models for Circular Design and eco-profile assessment of industrial products **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 (under penalty of exclusion)	• 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,** 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
INTERVIEW MODE	**Remotely** (Videocall) The interview can be conducted in English language

<table>
<tr><td>EVALUATION MARKS</td><td>
<table>
<tr><th>parameter</th><th>minimum score</th><th>maximum score</th></tr>
<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 colspan="3">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></tr>
<tr><td>Interview: discussion of the research project and publications (if any)</td><td>20/120</td><td>40/120</td></tr>
<tr><td colspan="3">Eligibility is achieved with a minimum score of 80/120</td></tr>
</table>
</td></tr>
<tr><td colspan="2">Further information available at the following web page: https://www.phdingind.unifi.it/index.html</td></tr>
</table>

EXAMINATION SCHEDULE		
	DATE	**TIME**
INTERVIEW	August 25th 2022	9:00 a.m.
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		