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UNIVERSITÀ
DEGLI STUDI
FIRENZE

DOCTORAL PROGRAMME IN INDUSTRIAL ENGINEERING

Director prof. Giovanni Ferrara

XXXIX cycle – academic year 2023/2024

TECHNOLOGICAL AREA	
ADMINISTRATIVE OFFICE	Department of Industrial Engineering Florence (DIEF)
CURRICULA	<ol style="list-style-type: none"> 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
<p>POSITIONS AVAILABLE: 17 Positions with scholarship: 15 Positions without Scholarship: 2* * standard ranking only</p>	
<p>Gross Annual amount of the scholarship € 21,000.00 (gross value) The increase of the scholarship is funded by Department of Industrial Engineering</p>	
RANKING LIST FOR STANDARD POSITIONS SCHOLARSHIPS AVAILABLE: 1	University of Florence
RANKING LISTS FOR POSITIONS WITH SPECIFIC RESEARCH TOPICS SCHOLARSHIPS AVAILABLE: 8	<p>5 - University of Florence 3 - Department of Industrial Engineering</p> <p>Thematics:</p> <ol style="list-style-type: none"> 1. Artificial intelligence techniques for underwater vehicles for monitoring and intervention tasks. 2. Heat mining in horizontal closed loop geothermal systems with CO2 and smart fluids mixtures: modelling and experimental analysis on a lab scale test bench 3. Optimization and monitoring of machining and WAAM additive processes 4. Aerodynamic study of innovative turbines for energy transition applications 5. Manufacturing process modelling and optimization for aerospace components

	<p>6. Physical and Virtual prototyping of tools and devices to support personalised medicine</p> <p>7. Research and development on multi-modal behaviour models for Human Robot Interaction and social decisionmaking in biomedical contexts"</p> <p>8. Modelling and simulation of natural gas distribution networks with hydrogen injection</p>
<p>RANKING LISTS FOR POSITIONS WITH SPECIFIC RESEARCH TOPICS - NRRP SCHOLARSHIPS AVAILABLE: 5</p>	<p>Cofunded by Department of Industrial Engineering Florence (DIEF)</p> <p>Tematiche:</p> <p>1 - NRRP - European Union - NextGenerationEU Tematic: "Simulation, Experimentation and Optimization of Energy Storage and Management Systems for Land Vehicles" Missione 4 "Istruzione e Ricerca" - Componente 2 "Dalla ricerca all'impresa" – "Rafforzamento delle strutture di ricerca per la creazione di "campioni nazionali di R&S" su alcune "Key Enabling Technologies" – (Centri Nazionali) - Sustainable Mobility Center (Centro Nazionale per la Mobilità Sostenibile - CNMS) - CN4 - CUP B13C22001000001</p> <p>1 - NRRP - European Union - NextGenerationEU Tematic: "Employment of machine learning techniques in the development of turbulence and transition models for applications in turbomachinery flow" Missione 4 "Istruzione e Ricerca" - Componente 2 "Dalla ricerca all'impresa" – "Rafforzamento delle strutture di ricerca per la creazione di "campioni nazionali di R&S" su alcune "Key Enabling Technologies" – (Centri Nazionali) Centro Nazionale di Ricerca HPC, Big data e Quantum Computing - CN1 – CUP: B83C22002830001</p> <p>1 - NRRP - European Union - NextGenerationEU Tematic: "Pressure Gain Combustion demonstrator development for new Hydrogen high efficiency thermal engine based on Rotating Detonation" Missione 4 "Istruzione e Ricerca" - Componente 2 "Dalla ricerca all'impresa" – "Rafforzamento delle strutture di ricerca per la creazione di "campioni nazionali di R&S" su alcune "Key Enabling Technologies" – (Centri Nazionali) - Sustainable Mobility Center (Centro Nazionale per la Mobilità Sostenibile - CNMS) - CN4 - CUP B13C22001000001</p> <p>1 - NRRP - European Union - NextGenerationEU Tematic: "Development of numerical simulation methodologies for the study of innovative turbocharging systems for hydrogen-fueled internal combustion engines" Missione 4 "Istruzione e Ricerca" - Componente 2 "Dalla ricerca all'impresa" – "Rafforzamento delle strutture di ricerca per la creazione di "campioni nazionali di R&S" su alcune "Key Enabling Technologies" – (Centri Nazionali) - Sustainable Mobility Center (Centro Nazionale per la Mobilità Sostenibile - CNMS) - CN4 - CUP B13C22001000001</p> <p>1 - NRRP - European Union - NextGenerationEU Tematic: "Research and development in Ultra-portable AI-based sensor systems for biomechanical and neurophysiological assessment in chronic disorders" Missione 4 "Istruzione e Ricerca" - Componente 2 "Dalla ricerca all'impresa" "Creazione e il rafforzamento degli "ecosistemi dell'innovazione", costruzione di</p>

	<p>“leader territoriali di R&S” (Ecosistemi dell’Innovazione) THE - Tuscany Health Ecosystem” - CUP B83C22003920001</p>
<p>SCHOLARSHIP FINANCED BY CASSA DI RISPARMIO DI PISTOIA E PESCIA, RANKING LISTS FOR POSITIONS WITH SPECIFIC RESEARCH TOPICS: 1</p>	<p>Thematic: “Ultrasound treatment of tumor tissues to force cells into apoptosis”</p>
<p>STUDY/RESEARCH PERIODS ABROAD</p>	<p>1-3 months</p>
<p>DOCUMENTS REQUIRED FOR THE ADMISSION (under penalty of exclusion)</p>	<ul style="list-style-type: none"> • 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. <p><i>The same documentation except for the final mark must be submitted by those who will graduate within the 31/10/2023</i></p>
<p>DOCUMENTS REQUIRED FOR THE EVALUATION</p>	<p>MANDATORY</p> <ul style="list-style-type: none"> • Curriculum Vitae • Research project <p>OPTIONAL</p> <ul style="list-style-type: none"> • Abstract of the MSc degree Thesis • Scientific publications • Any other additional qualification document
<p>RESEARCH PROJECT</p>	<p>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-49-topics-xxxix-cycle.html</p>
<p>INTERVIEW MODE</p>	<p>Remotely (Videocall)</p> <p>The interview can be conducted in English language</p>

EVALUATION MARKS	parameter	minimum score	maximum score
	Curriculum vitae; publications, other qualification documents	10/120	15/120
	Evaluation of the research project	50/120	65/120
	Applicants who obtain a mark of at least 60/120 according to the minimum score for each parameter will be admitted to the interview.		
	Interview: discussion of the research project and publications (if any)	20/120	40/120
	Eligibility is achieved with a minimum score of 80/120		
<p>Further information available at the following web page: https://www.phdingind.unifi.it/vp-49-topics-xxxix-cycle.html</p>			

EXAMINATION SCHEDULE		
	DATE	TIME
INTERVIEW	July 11 th 2023	9:00 a.m.
<p>The list of candidates admitted to the interview and the final ranking will be published at the following web page: https://www.unifi.it/p12341.html</p>		