

PhD Programme Table - 39th cycle
Call for Applications for the admission to the PhD programmes (39th cycle) A.Y. 2023/2024
for scholarships funded by Next Generation EU – NRRP ex M.D. 117/2023 and M.D.
118/2023 and from other sources




Section “Available Positions and Scholarships” integrated on 09/06/2023

Section “Available Positions and Scholarships” modified on 19/06/2023

PROGRAMME'S NAME	MECHANICS AND ADVANCED ENGINEERING SCIENCES (DIMSAI)
DURATION	3 years
PROGRAMME START DATE	01/11/2023 (DD/MM/YYYY)
LANGUAGES	Italian, English
COORDINATOR	Prof. Lorenzo Donati (l.donati@unibo.it)
CURRICULA	<ol style="list-style-type: none"> 1. Engineering and Industrial Design, Machine Construction, Metallurgy, and Manufacturing Technologies 2. Fluid Machinery, Energy Systems, Mechanics of Machines, and Industrial Mechanical Plants 3. Thermal Physics, HVAC Systems, Acoustics, Nuclear Technologies and Industrial Applications of Plasmas
PhD POSITIONS	12
ADMISSION PROCEDURE	Qualifications and research proposal evaluation Oral examination

Available Positions and Scholarships

Pos. n.	Financial Support	Description	Curriculum	Positions linked to a specific research topic
1	PhD Scholarship	Funded by the University of Bologna general budget and by the Department of Industrial Engineering	2	
2	PhD Scholarship	Funded by the University of Bologna general budget and by the Department of Industrial Engineering	2	
3	PhD Scholarship	Funded by the University of Bologna general budget and by the Department of Industrial Engineering	2	
4	PhD Scholarship	Funded by the University of Bologna general budget and by the Department of Industrial Engineering	3	
5	PhD Scholarship	Funded by the University of Bologna general budget and by the Department of Industrial Engineering	1	
6	PhD Scholarship	Funded by the EU - NextGenerationEU with funds made available by the National Recovery and Resilience Plan (NRRP) Mission 4,	2	Innovative Energy Systems and Power-to-Gas for the

	PNRR ex M.D. 118/2023 - Green and digital transitions	Component 1, Investment 3.4 (M.D. 118/2023) – Green and digital transitions		Transition to Green Hydrogen
7	PhD Scholarship PNRR ex M.D. 118/2023 - PNRR Research	Funded by the EU - NextGenerationEU with funds made available by the National Recovery and Resilience Plan (NRRP) Mission 4, Component 1, Investment 4.1 (M.D. 118/2023) – PNRR Research	1	Optimization of manufacturing processes through process digital twin
8	PhD Scholarship PNRR ex M.D. 118/2023 - PNRR Research	Funded by the EU - NextGenerationEU with funds made available by the National Recovery and Resilience Plan (NRRP) Mission 4, Component 1, Investment 4.1 (M.D. 118/2023) – PNRR Research	3	Modelling of Transport Phenomena for Industrial Applications
9	PhD Scholarship	Funded in the framework of the research training projects “Territorio: Transizione tecnologica, culturale, economica e sociale verso la sostenibilit�a” (PR. FSE + 2021/2027– DGR n. 509 del 03/04/2023) - CUP J33C23000610006 	3	Renewable energy sources integration for buildings' climatization: innovative aspects of low enthalpy systems
10	PhD Scholarship PNRR ex M.D. 117/2023	Funded by the EU – NextGenerationEU with funds made available by the National Recovery and Resilience Plan (NRRP) Mission 4, Component 2, Investment 3.3 (M.D. 117/2023) and by DPTLab S.r.l.	1	Optimisation of digital sketching techniques with the aid of artificial intelligence for the design of new industrial products
11	PhD Scholarship PNRR ex M.D. 117/2023	Funded by the EU – NextGenerationEU with funds made available by the National Recovery and Resilience Plan (NRRP) Mission 4, Component 2, Investment 3.3 (M.D. 117/2023) and by DPTLab S.r.l.	1	Implementation of Triz methodologies in the CAD development environment with the aid of artificial intelligence
12 10	PhD Scholarship PNRR ex M.D. 117/2023	Funded by the EU - NextGenerationEU with funds made available by the National Recovery and Resilience Plan (NRRP) Mission 4, Component 2, Investment 3.3 (M.D. 117/2023) and by METALCASTELLO S.p.A.	2	Study of new systems (technologies, materials, tools and processing parameters) for the finishing and superfinishing of gear wheels and planetary crowns in the field of power transmissions also with the EV (Electric Vehicle) type
13 11	PhD Scholarship PNRR ex M.D. 117/2023	Funded by the EU - NextGenerationEU with funds made available by the National Recovery and Resilience Plan (NRRP) Mission 4, Component 2, Investment 3.3 (M.D. 117/2023) and by Bi-Rex (Big Data Innovation & Research Excellence)	3	Additive manufacturing processes for the creation of microplasma
14 12	Research Grant	Provided by the Department of Industrial Engineering with funds made available by the	2	Models, methods and technologies for

	project PE10-ONFOOD - Research and innovation network on food and nutrition Sustainability, Safety and Security – Working ON Foods, Code PE0000003. The research grant will have a duration of 36 months, and gross percipient amount of €60,800.94	the design, management and control of logistics and operations in the agri-food and packaging supply chain and industry
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All PhD positions winners shall fulfill the learning and research obligations decided by the Academic Board and the obligations foreseen in the relevant regulations, funding schemes and eventual agreements, and in the Call for Applications. Moreover, applicants awarded with PhD scholarships funded by Next Generation EU shall fulfill specific obligations foreseen in the relevant funding scheme, in the relevant regulations and in the Call for Applications.

Admission Exams

	DATE AND TIME	RESULTS
Qualifications and research proposal evaluation	Applicants' participation is not required	Available from 11/07/2023**
Oral examination	Date: starting from 17/07/2023 – 9.00 a.m. CEST* Place: In presence, Scuola di Ingegneria, Viale Risorgimento 2, Bologna. Remotely, using Microsoft Teams	Available from 21/07/2023**

* In case that the oral examination cannot be completed in one day due to the large number of applicants, the oral examination detailed schedule shall be made available on the webpage [Studenti Online](#) together with the results of the qualifications and research proposal evaluation. **During the oral examination, applicants may express their interest in one or more positions linked to specific research topics.**

** The **results of the admission exams** will be available on the webpage [Studenti Online](#) (select “summary of the requests in progress” > “see detail” and open the .pdf file at the bottom of the page). **No personal written communication will be sent to applicants concerning the examinations results.**

Required and Supporting Documents to be attached to the application

All the documents listed below **shall be drawn up in English or Italian**. In case of documents originally issued in any other language (e.g. identity document, qualifications), an official translation is required.

Only qualifications obtained **during the last 5 calendar years** shall be taken into consideration, except for the University Degree. The Admission Board will assess the relevance of the supporting documents to the PhD Programme.

REQUIRED DOCUMENTS	
Identity document	Valid identity document with photo (i.e. identity card, passport)
Curriculum Vitae	No specific CV format is required
Degrees	Documents attesting the awarding of the first and second cycle degrees, the exams taken and the marks obtained (see Art. 3 of the Call for Applications)
Research proposal	Multi-annual research proposal, with special emphasis on the activities to be completed during the first-year course . The proposal must meet the following requirements: <ul style="list-style-type: none"> - it cannot exceed 20,000 characters, including spaces and formula possibly used. This figure does not include: the title of proposal, the outline, references and images (such as graphs, diagrams, tables, etc. - if present); - it must include: the state of the art; description of the proposal; expected results; references.
SUPPORTING DOCUMENTS	
Thesis abstract	Abstract of the second cycle degree thesis . Graduands applicants may submit the draft of the thesis. Abstracts cannot exceed 5,000 characters, including spaces and formula possibly used. The above figure does not include: the title of the thesis, the outline, references, and images such as graphs, diagrams, tables etc.

Publications	Lists of publications (i.e. monographs, articles on scientific journals) and minor publications (conference papers, etc.)
Other documents	<ul style="list-style-type: none"> - Research activity of any kind - whether basic, applied, translational, etc. - carried out in any capacity, including when covered by research grants, and as a staff member of research projects - Documents attesting the applicant's foreign languages proficiency - Periods of study abroad, completed by applicants outside their countries of origin (e.g. Erasmus programme or other similar mobility programmes) - Other qualifications attesting the suitability of the applicants (scholarships, prizes, vocational programmes, etc.)

Evaluation criteria*

Scores will be expressed in points out of 100, as follows.

1. Qualifications and research proposal evaluation

Minimum score for admission to the oral examination: 30 points, Maximum score: 50 points

Qualifications evaluation	First (Bachelor's) and second cycle (Master's) degrees final marks. Graduands shall be evaluated according to the Weighted Average Mark (WAM)	20 points max
	Publications and other qualifications attesting the applicant's training and skills	5 points max
Research proposal evaluation	Scientific value and ground-breaking nature of the proposal	15 points max
	Structure of the proposal	5 points max
	Proposal feasibility	5 points max

2. Oral examination

Minimum score for eligibility: 30 points, Maximum score 50 points

English language proficiency	5 points max
Applicant's suitability for academic research and knowledge of the topics connected to the research proposal	20 points max
General knowledge of the PhD programme's main research topics and of the research topics linked to the available PhD positions	25 points max

Oral examination aims to assess the suitability of the applicant for scientific research as well as the general knowledge of the PhD programme's main research topics and of the research topics linked to the available PhD positions. The applicant will be required to express interest for one or more topic-specific PhD positions: during the oral examination the knowledge of the chosen topic/s shall be assessed.

During the oral examination, the applicant's English language proficiency shall be assessed.

The oral examination is carried out in Italian or in English.

* Possible further evaluation criteria will be available on the [University website](#), selecting the relevant PhD Programme > "More information".