


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	
PROGRAMME’S NAME	CIVIL, CHEMICAL, ENVIRONMENTAL AND MATERIALS ENGINEERING
DURATION	3 years
PROGRAMME START DATE	01/11/2023 (DD/MM/YYYY)
LANGUAGES	Italian, English
COORDINATOR	Prof. Alessandro Tugnoli (a.tugnoli@unibo.it)
CURRICULA	1. Engineering of Infrastructure, Resources and Territory 2. Structural and Geotechnical Engineering 3. Chemical and Process Engineering 4. Materials Engineering and Industrial Biotechnology
PhD POSITIONS	19
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 in the framework of the research training projects “Territorio: Transizione tecnologica, culturale, economica e sociale verso la sostenibilità” (PR. FSE + 2021/2027– DGR n. 509 del 03/04/2023) - CUP J33C23000610006 	3	Safety and sustainability of technologies based on the use of hydrogen in decarbonisation strategies of the process industry
2	PhD Scholarship	Totally funded by the University of Bologna general budget	1	
3	PhD Scholarship	Totally funded by the University of Bologna general budget	2	
4	PhD Scholarship	Funded by the University of Bologna general budget and by the Department of Civil, Chemical, Environmental, and Materials Engineering	3	
5	PhD Scholarship	Funded by the Department of Civil, Chemical, Environmental, and Materials Engineering	4	
6	PhD Scholarship	Funded by the Department of Civil, Chemical, Environmental, and Materials Engineering with funds made available by the Project Versatile FURan-based polymers for strict and high value applicatiOns in packaging, aUtomotive and	4	Versatile furan-based polymers for strict and high value applications

		underwater environments - Acronym FURIOUS- Proposal ID 101112541 - Topic HORIZON-JU- Type of Action HORIZON-JU-RIA -Call HORIZON-JU-CBE-2022		
7	PhD Scholarship PNRR	Funded by the EU - NextGenerationEU with funds made available by the National Recovery and Resilience Plan (NRRP) – M4C2 Investment 1.4, title: “Sustainable Mobility Center”, code CN00000023 - CUP J33C22001120001 - Prof. Stefano Gandolfi - Spoke 7	1	High precision kinematic positioning for surveying vehicle (MMS, UAV) to create urban digital twins and managing of smart infrastructures: the integrations of GNSS, inertial and other sensors in the definition of position and attitude of a moving platforms
8	PhD Scholarship PNRR	Funded by the EU - NextGenerationEU with funds made available by the National Recovery and Resilience Plan (NRRP) – M4C2 Investment 3.1 - D. D. 3264 del 28/12/2021 - Development of ECCSEL-ERIC R.I. Italian facilities to improve user access, services and ENSure long-Term sustainability- code IR0000020 CUP: F53C22000560006 - Prof.Marco Giacinti Baschetti	3	Analysis of gas solubility, diffusivity and permeability in polymeric materials relevant in CO2 transport application in the Carbon Capture and Storage value chain
9	PhD Scholarship PNRR	Funded by the EU - NextGenerationEU with funds made available by the National Recovery and Resilience Plan (NRRP) – M4C2 Investment 3.1 - D. D. 3264 del 28/12/2021 - Development of ECCSEL-ERIC R.I. Italian facilities to improve user access, services and ENSure long-Term sustainability – code IR0000020 CUP: F53C22000560006 - Prof.Marco Giacinti Baschetti	3	Experimental and theoretical characterization of mass transport of pure gases and mixtures in polymeric membranes carbon capture applications
10	PhD Scholarship PNRR ex M.D. 118/2023 - Public Administration	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) - Public Administration	1	Green Revolution and Ecological Transition in Engineering of Infrastructure, Resources and Territory
11	PhD Scholarship PNRR ex M.D. 118/2023 - Public Administration	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) - Public Administration	4	Green Revolution and Ecological Transition in Materials Engineering and Industrial Biotechnology
12	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	Green Revolution and Ecological Transition in Engineering of Infrastructure,

				Resources and Territory
13	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	2	Green Revolution and Ecological Transition in Structural and Geotechnical Engineering
14	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	4	Green Revolution and Ecological Transition in Materials Engineering and Industrial Biotechnology
15	Research grant	Provided by the Department of Civil, Chemical, Environmental, and Materials Engineering with funds made available by the EU project Horizon Europe HORIZON-CL6-2022-ZEROPOLLUTION-01 Topic: HORIZON-CL6-2022-ZEROPOLLUTION-01-01 Type of action: HORIZON Research and Innovation Actions Granting authority: European Research Executive Agency - MAR2PROTECT - Preventing groundwater contamination related to global and climate change through a holistic approach based on managed aquifer recharge - CUP J53C22003510006 – Ref. Prof. Dario Frascari - Grant Agreement (GA) n. 101082048. The research grant will have a duration of 12 months, renewable up to 36 months, and gross percipient amount of €19,455.	1	Modeling tools for the simulation of saline intrusion in coastal aquifers
16	Research grant	Provided by the Department of Civil, Chemical, Environmental, and Materials Engineering with funds made available by the EU project Horizon Europe HORIZON-CL6-2022-ZEROPOLLUTION-01 Topic: HORIZON-CL6-2022-ZEROPOLLUTION-01-01 Type of action: HORIZON Research and Innovation Actions Granting authority: European Research Executive Agency - MAR2PROTECT - Preventing groundwater contamination related to global and climate change through a holistic approach based on managed aquifer recharge - CUP J53C22003510006 – Ref. Prof. Dario Frascari - Grant Agreement (GA) n. 101082048. The research grant will have a duration of 12 months, renewable up to 36 months, and gross percipient amount of €19,455.	3	Development of an adsorption / ion exchange process for the removal of micropollutants from treated wastewater, in the perspective to reuse it for managed aquifer recharge
17	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 AgroMateriae Srl	4	Development, optimization and characterization of new sustainable and innovative raw materials obtained from agro-industrial wastes for the plastic and bioplastic sector
18	Research grant	Provided by the Department of Civil, Chemical, Environmental, and Materials Engineering with	4	Development of a recycling process,

		funds made available by the EU project LIFE21-ENVIT-LIFE RESHOES/101074529. The research grant will have a duration of 12 months, renewable up to 36 months, and gross percipient amount of €23,509 per year		design of recycling and LCA analysis of end-of-life outdoor leather shoes by selective dissolution and rebonding techniques
19	Research grant	Provided by Interdepartmental Centre for Industrial Research in Renewable Resources, Environment, Sea and Energy - CIRI Renewable Resources, Environment, Sea and Energy – FRAME). The research grant will have a duration of 12 months, renewable up to 36 months, and gross percipient amount of €22,267 per year	3	Development and characterization of facilitated transport membrane for Carbon capture applications

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 evaluation	Applicants' participation is not required	Available from 03/07/2023**
Oral examination	Date: starting from 13/07/2023 – 9.30 a.m. CEST* Place: Remotely, using Microsoft Teams	Available from 14/07/2023**

* 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 in 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. Applicants are required to the CV Summary, as first page of the CV (see form at the bottom of the present document).
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 must mention on the cover page the Curriculum (1,2,3 or 4) the applicant is interested to and the proposal is about; - 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);

	<ul style="list-style-type: none"> - it must include: the state of the art; description of the proposal; expected results; outline of the proposed findings assessment criteria; references. <p>The research proposal that successful applicants shall carry out during their PhD career may possibly differ from the one proposed at the application stage. This shall be defined together with the supervisor and approved by the Academic Board.</p>
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.
Personal Statement	The statement shall include the reasons prompting the applicant to attend the PhD Programme and those relevant experiences and research interests , that make the applicant suitable for the specific PhD Programme (3,000 characters maximum, including spaces).
Publications	Lists of publications (i.e. monographs, articles on scientific journals), minor publications (conference papers, etc.), abstracts and posters presented during national and international conferences, etc.
Other documents	<ul style="list-style-type: none"> - Postgraduate vocational training programmes relevant to the PhD Programme main research topics - Teaching activities carried out at academic level - 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 - Work activity - Curricular or non-curricular professional internships - Documents attesting the applicant's foreign languages proficiency - Study periods 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, 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	University degree final mark and Weighted Average Mark (WAM). Graduands shall be evaluated according to the Weighted Average Mark (WAM)	20 points max
	Publications	3 points max
	Other evaluable documents	2 points max
Research proposal evaluation	Scientific value and ground-breaking nature of the proposal	12 points max
	Structure of the proposal	8 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
Research proposal presentation	25 points max
General knowledge of the PhD programme's main research topics and of the research topics linked to the available PhD positions	20 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.

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".

CV SUMMARY OF THE CANDIDATE (to be attached to the CV)

Surname _____
First name _____
Place and date of birth _____

Curriculum of interest for the Doctorate in Civil, Chemical, Environmental and Materials Engineering (select one):

- 1. Engineering of infrastructure, resources and territory
- 2. Structural and geotechnical engineering
- 3. Chemical and process engineering
- 4. Materials engineering and industrial biotechnology

TRAINING

Bachelor's degree (if more than one, repeat this section as needed)

Degree in: _____
Year of graduation: _____
University: _____
Country: _____
Formal duration of the course: _____ (years or fractions)

Weighted average of the marks obtained in the exams (GPA): _____
Minimum mark for sufficiency _____
Maximum possible mark _____
Average mark achieved by students¹: _____; reference set considered (e.g. degree course / subject area / university): _____

If the course provides for an overall final grade / verbal judgment (exams + final test) other than the GPA of the exams and the final test only:

Evaluation / mark achieved: _____
Grading scale adopted / minimum and maximum achievable mark: _____

Master's degree or single-cycle master's degree (if more than one, repeat this section as needed) Master in:

Year of graduation: _____
University: _____
Country: _____
Formal duration of the course: _____ (years or fractions)

Weighted average of the marks obtained in the exams (GPA): _____
Minimum mark for sufficiency _____
Maximum possible rating _____
Average mark achieved by students¹: _____; reference set (e.g. degree course / subject area / university): _____

If the course provides for an overall final grade / verbal judgment (exams + final test) other than the GPA of the exams and the final test only:

Evaluation / mark achieved: _____
Grading scale adopted / minimum and maximum achievable mark: _____

NOTES

¹ If the information is available. The average mark or the mark of 50% percentile (median) can be reported [specify which one].