PhD Programme Table - 39th cycle
Call for Applications for further PhD positions
funded by Next Generation EU - NRRP ex M.D. 117/2023 and 118/2023
and from other sources - PhD Programmes (39th cycle)
A.Y. 2023/2024

Finanziato dall'Unione europea NextGenerationEU | Ministero dell'Università e della Ricerca | Italiadomani PIANO NAZIONALE DI RIPRESA E RESILIENZA | ALMA MATER STUDIORUM UNIVERSITÀ DI BOLOGNA

Section "Available Positions and Scholarships" integrated on 02/08/2023

PROGRAMME'S NAME	BIOMEDICAL, ELECTRICAL AND SYSTEM ENGINEERING
DURATION	3 years
PROGRAMME START DATE	01/11/2023 (DD/MM/YYYY)
LANGUAGES	Italian, English
COORDINATOR	Prof. Michele Monaci (michele.monaci@unibo.it)
CURRICULA	1. Automatic Control and Operational Research 2. Bioengineering 3. Electrical Engineering
PhD POSITIONS	10
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 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 DecisionBrain S.a.s.	1	Re-optimization methods for real-time adjustments and human interaction
2	***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 G.D. S.p.a	1	Trajectory planning and control for multiple robots in a shared workspace and with energy optimization constraints
3	***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 G.D. S.p.a	1	Innovative navigation methodologies for standalone and in fleet AMR
4	***PhD Scholarship PNRR ex M.D. 117/2023***	Funded by the EU - NextGenerationEU with funds made available by the National Recovery and Resilience Plan	1	New robotic technologies for assembly, wiring and quality control of electrical panels for automation

		(NRRP) Mission 4, Component 2, Investment 3.3 (M.D. 117/2023) and by I.E.M.A. S.r.l		
5	***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 Bonfiglioli SpA	1	Digital Twin of integrated or distributed translational propulsion systems and electrified equipment for agricultural applications, through the realisation of static and dynamic functional models for the identification of optimal dimensioning and performance simulation, and thermal models of the system and components
6	***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 Bonfiglioli SpA	1	Development of Model Based / Physical Model Based control algorithms for the integration of propulsion systems and electrified equipment, intended for agricultural applications for field operations, with functional optimisation of operations, optimisation of power flows and interfacing of assisted and autonomous driving systems
7	***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 Bonfiglioli Riduttori SpA	3	Advanced control algorithms for reluctance synchronous electric motors
8	***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 Centro Ricerche FIAT	3	Methodologies and related set-ups for the experimental characterization from RF up to millimetrewaves of electromagnetic properties in plastic materials for automotive
9	***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 Khymeia S.r.l.	2	Brain-machine interface and virtual reality for assisted walking and powered mobility: innovative technologies for neurorehabilitation
10	***Research Grant***	Provided by the Department Electrical, Electronic, and Information Engineering "Guglielmo Marconi" with funds made available by INAF -OAS. The research grant will have a duration of 12 months, renewable up to 36 months, and gross percipient amount of € 21,077.66	1	Development of estimation, optimization and control algorithms for morfeo, the adaptive optics module of the ELT telescope

The number of positions and scholarships may be incremented in case additional funding becomes available, notwithstanding the terms of the application process as detailed in Art. 3 of the Call for Applications. Any amendment, update or integration of the Programme Table will be published, even after the Call for Applications has expired. Any further PhD positions shall be integrated in the PhD Programme Table within ten days before the oral examination.

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 **29/08/2023****
Oral examination	**Date**: starting from **11/09/2023 – 9.30 a.m. CEST*** **Place**: In presence, Sala Giunta, Department of Electrical, Electronic, and Information Engineering "Guglielmo Marconi", Viale Risorgimento 2, Bologna. Remotely, using Microsoft Teams	Available from **12/09/2023****

* 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
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)
SUPPORTING DOCUMENTS	
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: - it must **mention on the cover page the Curriculum** the applicant is interested to and the proposal is about. In case the applicant were not to indicate one of the available Curricula, the Admission Board will assign the applicant the Curriculum most consistent with the research proposal and all the submitted documents. The assigned Curriculum will be communicated within the qualifications evaluation results; - **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); The research proposals 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.

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.
Reference letter/s	**No more than 2 reference letters** signed by Italian or international academics and professionals in the research field, which do not form part of the Admission Board, attesting the suitability of the applicant and his/her interest in the scientific research. Letters shall be uploaded following the procedure detailed in the Call for Applications (Art. 3.2)
Publications	- Full text publications (i.e. monographs, articles on scientific journals) – **max n.3** - Full text minor publications (conference papers, etc.) – **max n. 2**
Other documents	- Postgraduate vocational training programmes relevant to the PhD Programme main research topics - Teaching and/or tutorship activity 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 - 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. Note that the qualifications and research proposal will be evaluated based on the consistency with the chosen Curriculum.

1. Qualifications and research proposal evaluation

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

Qualifications evaluation	Second cycle (Master's) degree final mark. Graduands shall be evaluated according to the Weighted Average Mark (WAM)	15 points max
	Publications	5 points max
	Other evaluable documents	15 points max
Research proposal evaluation	Scientific value and ground-breaking nature of the proposal	5 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
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".