

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	AUTOMOTIVE ENGINEERING FOR INTELLIGENT MOBILITY
ASSOCIATED PARTNERS <i>Pursuant to art. 3 para 2 lett. a) of the MD n. 226/2021</i>	Università degli Studi di Modena e Reggio Emilia Università degli Studi di Parma
DURATION	3 years
PROGRAMME START DATE	01/11/2023 (DD/MM/YYYY)
LANGUAGES	English
COORDINATOR	Prof. Nicolò Cavina (nicolo.cavina@unibo.it)
CURRICULA	1. Vehicle Design, Manufacturing and Systems Integration 2. Energy Systems, Powertrains, Vehicle Performance 3. Vehicle Informatics and Connectivity
PhD POSITIONS	17
ADMISSION PROCEDURE	Qualifications and research proposal evaluation Oral examination

Available Positions and Scholarships

Pos. n.	Financial Support	Description	Curriculum	Positions linked to research topics
1	PhD Scholarship	Funded by the University of Bologna general budget and by the Department of Industrial Engineering	1	Hybrid and big scale 3d printing for automotive applications
2	PhD Scholarship PNRR ex M.D. 118/2023 - Green and digital transitions	Funded by the EU - NextGenerationEU with funds made available by the National Recovery and Resilience Plan (NRRP) Mission 4, Component 1, Investment 3.4 (M.D. 118/2023) – Green and digital transitions	1	Design of optimised lightweight lattice structures for the automotive field bearing variable static and dynamic loads
3	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	Smart mobility for a carbon-neutral society
4	PhD Scholarship PNRR ex M.D. 118/2023 -	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	Smart charging infrastructure for electric vehicles

	PNRR Research			
5	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	Physical and data driven modeling of keyhole generation in laser welding manufacturing processes
6	PhD Scholarship	Funded by Università degli Studi di Parma	3	Embedded Systems for autonomous driving
7	PhD Scholarship	Funded by Università degli Studi di Parma	2	Energy management/storage systems in electric or hybrid vehicles
8	PhD Scholarship	Funded by Università di Modena e Reggio Emilia	1	Design to sustainability and manufacturing of components for High Performance vehicles
9	PhD Scholarship	Funded by Università di Modena e Reggio Emilia	2	Electrical Machines and Drives for next generation Transportation systems
10	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. Claudio Lantieri	3	Study of road infrastructure in relation of the transition to Connected and Autonomous Vehicle (CAV)
11	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. Alberto Martini	2	Elastodynamic modelling and vibration testing of automotive e-powertrain subsystems
12	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. Alessandro Ascari	1	Design and optimization of manufacturing processes for the production of light alloys components for sustainable mobility
13	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. Giovanni Pau	3	AI algorithms for residual life estimation on battery fleets
14	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 Mattoccia	3	Vision Based Perception for Autonomous Driving
15	PhD Scholarship	Funded by the EU - NextGenerationEU with funds made available by the National Recovery and Resilience Plan (NRRP)	2	Development of control and performance optimization techniques for hybrid power-units installed on racing cars

	PNRR ex M.D. 117/2023	Mission 4, Component 2, Investment 3.3 (M.D. 117/2023) and by Ferrari S.p.A.		
16	Research Grant	Provided by the Department of Electrical, Electronic, and Information Engineering "Guglielmo Marconi" with funds made available by NextGenerationEU – National Resilience and Recovery Plan (NRRP) – Mission 4 Research and Education – Component 2 From research to business - Investment 1.5, Notice D.D. 3277 of 30/12/2021 - ECO-Ecosister, title: Ecosystem for Sustainable Transition in Emilia-Romagna, code ECS00000033 - CUP J33C22001240001. The research grant will have a duration of 12 months, renewable up to 36 months, and gross percipient amount of €20,266.98 per year	2	Integration of electricity generation systems from renewable energy sources and storage for sustainable mobility
17	Research Grant	Provided by the Department of Electrical, Electronic, and Information Engineering "Guglielmo Marconi" with funds made available by JU-KDT - TRISTAN (ref. Prof. Davide Rossi) CUP J53C22004780005 - GA 101095947. The research grant will have a duration of 12 months, renewable up to 36 months, and gross percipient amount of €19,367 per year	3	HW-SW Codesign of Driver and Occupant Monitoring Systems based on heterogeneous sensors

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 04/07/2023**
Oral examination	Date: starting from 18/07/2023 – 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 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)
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 and the main research topic 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); - 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), 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 university 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 knowledge of foreign languages - 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	Second cycle (Master's) degree final mark. 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

Foreign language proficiency	5 points max
Research proposal presentation	30 points max
General knowledge of the PhD programme's main research topics and of the research topics linked to the available PhD positions	15 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 oral examination is carried out in English.

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