PhD Programme table 37th cycle – PON Call for application "Ricerca e Innovazione" 2014 – 2020

PROGRAMME'S NAME	Automotive Engineering for Intelligent Mobility
IN COLLABORATION WITH art. 2, comma 2, lett. c) del D.M. n. 45/2013 (dottorato in convenzione con istituzioni di ricerca)	University of Modena and Reggio Emilia University of Parma
DURATION	3 years
PROGRAMME START DATE	01/01/2022
LANGUAGE	English
COORDINATOR	Prof. Nicolò Cavina (nicolo.cavina@unibo.it)
CURRICULA	1. Vehicle Design and Manufacturing, System Integration 2. Energy Systems, Propulsion, Vehicle Performance 3. Vehicle Informatics and Connectivity
RESEARCH TOPICS	Detailed list at the bottom of the present document
PhD POSITIONS	2
ADMISSION PROCEDURE	Qualifications and research proposal evaluation

Available Positions and Scholarships

Actions	Pos. n.	Financial Support	Research topic
Action IV.5 – PhDs on green topics	1	PhD Scholarship	Innovative joining technologies for weight reduction in vehicles for lowering polluting emissions
	2	PhD Scholarship	Application of advanced car design methodologies and innovative simulation systems for the construction of new low environmental impact vehicles

Required and Supporting Documents to be attached to the application

(only documents in Italian, English, French, German and Spanish shall be considered as valid and be assessed by the Admission Board)

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 criteria listed in Art. 3 of the Ministerial Decree 1061/2021 (see also Art. 4 of the Call for applications)**.

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 (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: - it **cannot exceed 20,000 characters**, including spaces and formulas, if present. This figure does not include: the title, the outline, references and images (such as graphs, diagrams, tables etc. - where present); - it must be written following the template provided for Action IV.5 "PhDs on Green topics". The template is attached to the Call for Application and available for download on the University website.
SUPPORTING DOCUMENTS	
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.

Evaluation criteria

The **results of the admission exams** will be available **from 03/11/2021** on 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**.

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

Minimum score for eligibility: 60 points, Maximum score: 100 points

Qualifications evaluation	University degree final mark. Graduands shall be evaluated according to the Weighted Average Mark (WAM)	10 points max
	Publications	10 points max
Research proposal evaluation		80 points max

Research Topics

n. 1 - GREEN

Thematic area SNSI 2014-20	Innovative and eco-friendly materials
PNR 2021-2027*	5.5.1 Sustainable mobility
Project title	Innovative joining technologies for weight reduction in vehicles for lowering polluting emissions
Project description	The project aims to develop computational models for the design of high strength-to-weight ratio joining systems, optimized for the assembly of lightweight materials (Al and Ti alloys, traditional and BIO composites). The target sectors are automotive and aerospace, where the minimization of the weight of the joints will allow significant savings of pollutant emissions. The project includes a preliminary phase of static, fatigue and tribological experimental characterization of materials and components.
Mandatory traineeship	6 months
Company type	Design, engineering, fabrication and commissioning of special fabrications in metal (especially titanium), other alloys and composites.
Stay abroad	NO

n. 2 - GREEN

Thematic area SNSI 2014-20	Reduction of environmental impact
PNR 2021-2027*	5.5.1 Sustainable mobility
Project title	Application of advanced car design methodologies and innovative simulation systems for the construction of new low environmental impact vehicles
Project description	Study and application of advanced methodologies for car design and conceptual body design of new generation cars with low environmental impact. Application of the SDE method and new simulation technologies to reduce costs and waste, with the realization of prototypes in VR and AR as an alternative to material ones. Particular attention will be devoted to the design of the body, combining high aesthetic and functional standards, proposing new aerodynamic solutions, limiting fuel consumption and integrating shapes and volumes with the surrounding environment.
Mandatory traineeship	6 months
Company type	Automotive prototypes, models and moulds; car design
Stay abroad	6 months

*the translation of PNR 2021-2027 has been carried out by the PhD Unit