

# AEROSPACE SCIENCE AND TECHNOLOGY

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<b>Starting date of the PhD Programme</b>	01/11/2020
<b>Duration</b>	3 calendar years
<b>Language of the PhD Programme</b>	Italian / English
<b>Mandatory stay abroad</b>	Yes (3 months)

<b>Research topics</b>	
<p>This PhD course pursues the education of researchers and high-qualified engineers, operating in the typical fields of Aerospace Engineering and able to address issues related to design and research activities in disciplines such as:</p> <ul style="list-style-type: none"> <li>- Aerodynamics and fluid dynamics</li> <li>- Tribological behavior of metallic materials, with and without surface modifications</li> <li>- Metallurgical features of metallic components produced by innovative process such as additive manufacturing</li> <li>- Mechanical and aerospace design and structures</li> <li>- Astronautics and Space Systems</li> <li>- Microstructure and mechanical properties of advanced metals and metal matrix composites</li> <li>- Flight mechanics and control</li> <li>- Experimental stress analysis, characterization and development of constitutive models</li> <li>- Design methods and tools in industrial engineering - Mechanical and aerospace technologies and materials</li> <li>- Mechanical and Thermal Measurements, applied to aerospace systems.</li> </ul>	

<b>PhD positions and scholarships</b>			
<b>Position n.</b>	<b>Financial support</b>	<b>Description</b>	<b>Positions linked to research subjects</b>
1	PhD Scholarship	Funded by the University of Bologna general budget and co-funded by Department of Industrial Engineering	
2	PhD Scholarship	Funded by Alma Mater Studiorum Università di Bologna - Campus di Forlì	Radioscience experiments with the HERA mission
3	PhD Scholarship	Funded by Department of Industrial Engineering with funds made available by the project H2020 NEO-MAPP for €31.554,00 (Prof. Tortora)	Dynamic behaviour of Advanced Composite Laminates for Aerospace Applications
4	PhD Scholarship	Funded by CURTI Costruzioni Meccaniche Spa	Development of remotely piloted system based on the Zefhir ultralight helicopter, for environmental monitoring and land protection applications

**Positions linked to specific research subjects:** during the oral examination or on the cover page of the research project submitted, applicants may express to the Admission board their interest in one or more positions linked to specific research subjects. Considering the expressions of interest above, the Admission Board shall express its view on the suitability of the interested applicants, taking into account their specific skills, experience and aptitude.

## Admission requirements

Please, see art. 2 of the Call for applications

## Mandatory documents to be attached to the application

Please, see art. 3 of the Call for applications

**Further qualifications that may be attached to the application, if in possession of the applicant** (only qualifications attested by documents drawn up in Italian, English, French, German and Spanish shall be considered as valid and assessed by the Admission Board)

- Abstract of the second cycle master's degree thesis. Undergraduate applicants may submit the draft of the thesis approved by their supervisor (please, note that abstracts cannot exceed 5.000 characters, including spaces and formula possibly used. The above figure does not include: the title of thesis, the outline, and images such as graphs, diagrams, tables etc. - where present).
- At least one and no more than 2 reference letters signed by Italian and 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 for the scientific research.

Please, note that the above letters cannot be uploaded by applicants. When filling the online application form on <http://studenti.unibo.it>, applicants will be only allowed to provide the email accounts of the requested academic/professional. The latter shall receive an email from the University of Bologna providing for the instructions for uploading. Only letters in pdf format submitted before the expiry date and time of the Call shall be accepted.

- Multi-annual research project, with special emphasis on the activities to be completed during the first-year course. The proposal must meet the following requirements:
  - o It must indicate in the cover page the curriculum of the PhD Programme the applicant is interested in and that covers the research project proposal;
  - o It cannot exceed 20.000 characters, including spaces and formula possibly used. This figure does not include: the title of project, the outline, references and images (such as graphs, diagrams, tables etc. - where present);
  - o It must include:
    - the state of the art;
    - description of the project;
    - expected results;
    - references.

The research projects that successful applicants shall carry out during their doctoral career may possibly differ from the project proposed at the application stage. This shall be defined together with the supervisor and approved by the Academic Board.
- Motivation Letter describing the reasons why the applicant wants to attend the doctoral programme as well as the experiences carried out and the research interests that make him/her suitable for the doctoral programme (max 3,000 characters, including spaces).
- List of the publications (monographs, articles published on scientific journals. book's chapters).
- 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.
- Study periods completed by students 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).

#### Admission exams (art. 4 of the call for applications)

Examination type	Schedule (please, note that applicants shall not receive any communication concerning the exams schedule)		Examination results publication (please, note that applicants shall not receive any communication concerning the publication of results)
Qualifications and research project evaluation	Non-presential.		The results of the qualifications and research project evaluation shall be available online starting from the <b>12/06/2020</b> at the page <a href="http://studenti.unibo.it">http://studenti.unibo.it</a> (please, select “summary of the requests in progress” - “see detail” and open the pdf file “risultati valutazione titoli e progetto”)
Oral examination	Date	<b>01/07/2020</b> In case that the oral examination cannot be completed in one day due to the large number of applicants, the oral exam schedule shall be made available at the webpage <a href="http://studenti.unibo.it">http://studenti.unibo.it</a> together with the results of the qualifications and research project evaluation	The results of the oral examination shall be available on the webpage <a href="http://studenti.unibo.it">http://studenti.unibo.it</a> starting from <b>08/07/2020</b> (please, select “summary of the requests in progress” - “see detail” and open the pdf file “risultati prova orale”)
		Time	
	Applicants can ask to take the exam remotely. For further details please refer to the relevant provision laid down in art. 4 of the Call for applications.		

#### Evaluation criteria

Points will be allocated to applications out of a total of 100 on the basis of the following weighting:

##### 1. Qualifications and research project

- Minimum for admission to the oral exam: 30 points
- Maximum: 50 points

Only qualifications relating to the last 5 calendar years prior to the calendar year of publication of the Call for applications shall be taken into consideration, with the exception of the University Degree (Diploma di laurea). Please, note that qualifications must be consistent with the PhD Programme.

Points relating to qualifications shall be allocated on the basis of the following criteria:

- Graduation final mark. Undergraduates shall be evaluated on the basis of the Weighted Average Mark (WAM): max 20 points
- Publications and other qualifications attesting to the candidate's skills and specific knowledge of issues connected to the PhD Programme: max 5 points

Points relating to the evaluation of the research project shall be allocated on the basis of the following criteria:

- Scientific value and ground-breaking nature of the proposal: max 15 points
- Description and structure of the proposal: max 5 points
- Proposal feasibility: max 5 points

## **2. Oral examination**

- Minimum for inclusion in the final ranking list :30 points
- Maximum: 50 points

Oral examination is intended to assess the suitability of the applicant to pursue scientific research as well as the general knowledge of issues connected to the PhD Programme.

During the oral examination, knowledge of English language shall be assessed.

The oral examination is carried out in English.

Points relating to the oral examination shall be allocated on the basis of the following criteria:

- Knowledge of English language: max 5 points
- Research project presentation: max 30 points
- General knowledge of issues connected to the PhD Programme: max 15 points

Possible evaluation sub-criteria will be available on the [Unibo website](#), selecting the relevant PhD Programme → "PhD programme information" at the bottom of the page in the section "Notices".

## **Final ranking list and enrolment (arts.6 and 7 of the Call for applications)**

After the publication of the results of the oral exam, the final ranking list will be available on the [Unibo website](#), selecting the relevant PhD Programme → "PhD programme information" at the bottom of the page in the section "Notices".

Following the publication of the final ranking list, successful applicants must enroll on <http://studenti.unibo.it> by the deadline indicated on the [Unibo website](#), selecting the relevant PhD Programme → "PhD programme information".