

## PHD PROGRAMME TABLE 37TH CYCLE

Section "Available Positions and Scholarship" integrated on 29/04/2021

Section "Available Positions and Scholarship" integrated on 06/05/2021

Section "Available Positions and Scholarship" integrated on 20/05/2021

Section "Available Positions and Scholarship" integrated on 08/06/2021

PROGRAMME'S NAME	<b>ENGINEERING AND INFORMATION TECHNOLOGY FOR STRUCTURAL AND ENVIRONMENTAL MONITORING AND RISK MANAGEMENT – EIT4SEMM</b>
DURATION	3 years
PROGRAMME START DATE	01/11/2021
LANGUAGE	English
MANDATORY STAY ABROAD	6 months
COORDINATOR	Prof. Alessandro Marzani ( <a href="mailto:alessandro.marzani@unibo.it">alessandro.marzani@unibo.it</a> )
CURRICULA	N/A
RESEARCH TOPICS	<a href="#">Detailed list at the bottom of the present document</a>
PHD POSITIONS	<b>10</b>
ADMISSION PROCEDURE	Qualifications and research proposal evaluation Oral examination

### Available Positions and Scholarships

Pos. n.	Financial Support	Description	Positions linked to research topics
1	PhD Scholarship	Totally funded by the University of Bologna general budget	
2	PhD Scholarship	Co-funded by the University of Bologna general budget and the Department of Computer Science and Engineering	
3	PhD Scholarship	Co-funded by the University of Bologna general budget and the Department of Electrical, Electronic, and Information Engineering "Guglielmo Marconi" with funds made available by ARCES	
4	PhD Scholarship	Co-funded by the University of Bologna general budget and the Department of Civil, Chemical, Environmental, and Materials Engineering with funds made available by ARCES	
5	PhD Scholarship	Funded by MUR under the "Departments of Excellence" initiative	Structural and Geotechnical Engineering
6	PhD Scholarship	Funded by MUR under the "Departments of Excellence" initiative	Innovative Technologies, Methods and Models for Chemical Engineering
7	Research Grant	Provided by the Department of Electrical, Electronic, and Information Engineering "Guglielmo Marconi" with funds made available by the EU projects EPI - DEI (PI: Luca Benini), TEP - DEI (PI: Davide Rossi), TII - ALMA AI (PI: Davide Rossi, Luca Benini, Andrea Acquaviva). The research grant will have a duration of 12 months, renewable up to 36 months, and a gross percipient amount of € 19.367,00	Extending RISC-V Processors For Secure Drone Navigation Systems

8	Research Grant	Provided by the Department of Civil, Chemical, Environmental, and Materials Engineering with funds made available by the project PRIN 2017 (CUP J34I19001480001 P.I. Prof.ssa Valentina Ciriello). The research grant will have a duration of 12 months, renewable up to 36 months, and a gross percipient amount of € 19.367,00.	Data-driven approaches and meta-modeling for diagnostic research in hydraulic-related problems including those handled by the Project PRIN 2017- CUP J34I19001480001
9	Industrial PhD	Position reserved for employees of HPE S.r.l.	
10	PhD Scholarship	Funded within the Research training projects “Big Data per una regione europea più ecologica, digitale e resiliente” (Fondo POR FSE – Resolution n. 752 of 24/05/2021)	Structures and infrastructures health management by integrating BIM and monitoring approaches based on big data analysis

## Admission Exams

	DATE AND TIME	RESULTS
Qualifications and research proposal evaluation	Applicants’ participation is not required	Available from <b>14/06/2021**</b>
Oral examination	<b>Date:</b> starting from <b>21/06/2021 – 9 am CEST*</b> <b>Place:</b> Remotely, using Microsoft Teams	Available from <b>30/06/2021**</b>

\* 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 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

*(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 PhD Programme.

REQUIRED DOCUMENTS	
<b>Identity document</b>	Valid identity document with photo (i.e. identity card, passport)
<b>Curriculum Vitae</b>	No specific CV format is required
<b>Degrees</b>	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	
<b>Research proposal</b>	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"> <li>- it must mention <b>on the first page up to 3 research topics</b> of the PhD Programme (<a href="#">see the list of research topics at the bottom of the present document</a>) associated to the research proposal;</li> <li>- it <b>cannot exceed 10.000 characters</b>, 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).</li> </ul>
<b>Personal Statement</b>	The statement shall include <b>the reasons prompting the applicant to attend the PhD Programme</b> and those relevant experiences and research interests, that make the applicant suitable for the specific PhD Programme (3000 characters maximum, including spaces).

<b>Publications</b>	<ul style="list-style-type: none"> <li>- Publications in full text (i.e. monographs, articles on scientific journals, volume chapters)</li> <li>- Minor publications in full text (conference papers, etc.)</li> <li>- Abstracts and posters presented during academic conferences – <b>max n. 3</b></li> </ul>
<b>Other documents</b>	<ul style="list-style-type: none"> <li>- University Master Courses (Master Universitari di I e II livello), Postgraduate vocational training programmes and/or specialisation programmes relevant to the PhD Programme</li> <li>- Research activity - whether basic, applied, translational, etc. - carried out in any capacity, including when covered by research grants, and as a staff member of research units</li> <li>- Working activity</li> <li>- Professional and/or training internships</li> <li>- Language proficiency certificates</li> <li>- Periods of study abroad, outside the country of origin (e.g. Erasmus programme or other similar mobility programmes)</li> <li>- Other qualifications attesting the suitability of the applicants (scholarships, prizes, etc)</li> </ul>

## 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

<b>Qualifications evaluation</b>	University degree final mark. Graduands shall be evaluated according to the Weighted Average Mark (WAM)	20 points max
	Publications	3 points max
	Other documents attesting the applicant's training and skills	2 points max
<b>Research proposal evaluation</b>	Scientific value and innovative nature of the proposal	12 points max
	Description and 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 proficiency	5 points max
Research project presentation	25 points max
General knowledge of issues encompassed by the PhD Programme	20 points max

Oral examination includes the presentation of the research proposal and aims to assess the suitability of the applicant for scientific research as well as the general knowledge of issues encompassed by the PhD Programme ([see the list of research topics at the bottom of the present document](#)). During the oral examination, 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", at the bottom of the page in the section "Notices".

## Final Ranking List and Enrollment

Considering the expressions of interest for **topic-specific positions** (see Art. 9 of the Call for Applications), the Admission Board shall express its view on the suitability of the interested applicants, taking into account their specific skills, experience and aptitude.

For the awarding or replacement of topic-specific positions, sub-ranking lists shall be drawn up. **In case of vacancies**, after having scrolled all the sub-ranking list for the topic-specific position, eligible applicants from the general ranking list shall be contacted.

After the publication of the results of the oral examination, the **final ranking list** will be available on the [University website](#), selecting the relevant PhD Programme > "More information", section "Notices" at the bottom of the page. Following the publication of the final ranking list, successful applicants shall **enroll** on [Studenti Online](#) by the deadline indicated on the [University website](#), selecting the relevant PhD Programme > "More information".

If a successful applicant withdraws from a position, the following applicant in the ranking list, who is also eligible for the specific position, will be contacted. During the replacement procedure, the new terms of enrollment shall be communicated via e-mail to the chosen applicant.

## Research Topics

The following learning, teaching and research areas have been identified:

- Physical models (analytical and numerical), system identification
- Structural mechanics
- Fluid mechanics, hydrology and soil mechanics
- Geomatics and autoID
- Process safety and loss prevention
- Remote sensing and earth observation systems
- Climate change monitoring and control
- Positioning systems
- Sensors and actuators, interoperability and dependability
- Communication and sensor networks, Internet of Things, Web of Things
- Energy harvesting and power management
- ICT techniques for energy efficiency in buildings and cities
- Nondestructive tests, methods and technologies
- Signal and image processing, computer vision
- HW/SW design of embedded systems
- Machine learning applied to structural and environmental monitoring
- Advanced information processing methodologies, wearable computing, high performance computing
- Information management, big data, crowd sensing, data availability, data privacy and security
- Data modeling, data analysis/uncertainty, learning and cognitive analytics, prediction, decision support
- Domain specific platforms and services
- Modeling and simulation methodologies and tools for complex systems
- Safety, risk analysis and management
- Resilience and resilience engineering
- Logistics (in ordinary and extraordinary conditions)
- Optimization schemes/strategies
- Reliable systems design and project-based learning
- Environmental multi-source pollution and control
- Sea pollution control and coastal management
- Emergency management and communication
- Circular economy and circular resource management.