

ALMA MATER STUDIORUM | AREA UNIVERSITÀ DI BOLOGNA | FORMAZIONE E DOTTORATO

## PHD PROGRAMME TABLE

## Call for applications for the admission to the PhD programmes (41<sup>st</sup> cycle) - A.Y. 2025/2026 Second round

| PROGRAMME'S NAME     | CIVIL, CHEMICAL, ENVIRONMENTAL AND MATERIALS<br>ENGINEERING   |
|----------------------|---|
| DURATION             | 3 years   |
| PROGRAMME START DATE | 01/11/2025 (DD/MM/YYYY)   |
| LANGUAGES            | Italian, English  |
| COORDINATOR          | Prof. Enrico Sassoni ( <u>enrico.sassoni2@unibo.it</u> )  |
| CURRICULA            | <ol> <li>Engineering of Infrastructure, Resources and Territory</li> <li>Structural and Geotechnical Engineering</li> <li>Chemical and Process Engineering</li> <li>Materials Engineering and Industrial Biotechnology</li> </ol> |
| PhD POSITIONS        | 15  |
| ADMISSION PROCEDURE  | Qualifications and research proposal evaluation<br>Oral examination   |

# Available Positions and Scholarships

| Pos.<br>n. | Financial<br>Support | Description   | Curriculu<br>m | Positions linked to a specific research topic              |
|------------|----------------------|---|----------------|--|
| 1          | PhD Scholarship      | Totally funded by the University of<br>Bologna general budget   | 1              | Engineering of Infrastructures,<br>Resources and Territory |
| 2          | PhD Scholarship      | Totally funded by the University of Bologna general budget  | 1              | Engineering of Infrastructures,<br>Resources and Territory |
| 3          | PhD Scholarship      | Totally funded by the University of<br>Bologna general budget   | 2              | Structural and Geotechnical<br>Engineering                 |
| 4          | PhD Scholarship      | Totally funded by the University of<br>Bologna general budget   | 2              | Structural and Geotechnical<br>Engineering                 |
| 5          | PhD Scholarship      | Totally funded by the University of<br>Bologna general budget   | 3              | Chemical and Process<br>Engineering                        |
| 6          | PhD Scholarship      | Totally funded by the University of<br>Bologna general budget   | 4              | Materials Engineering and<br>Industrial Biotechnology      |
| 7          | PhD Scholarship      | Funded by the University of Bologna<br>general budget and by the Department of<br>Civil, Chemical, Environmental, and<br>Materials Engineering    | 3              | Chemical and Process<br>Engineering                        |
| 8          | PhD Scholarship      | Funded by the Department of Civil,<br>Chemical, Environmental, and Materials<br>Engineering with funds made available by<br>the project H2DuraPol | 3              | Chemical and Process<br>Engineering                        |
| 9          | PhD Scholarship      | Funded by the Department of Civil,<br>Chemical, Environmental, and Materials  | 3              | Chemical and Process<br>Engineering                        |

|    |                 | Engineering with funds made available by the project Pol(Hy)Mer   |   |  |
|----|-----------------|---|---|--|
| 10 | PhD Scholarship | Funded by the Department of Civil,<br>Chemical, Environmental, and Materials<br>Engineering   | 1 | Engineering of Infrastructures,<br>Resources and Territory   |
| 11 | PhD Scholarship | Funded by Regione Emilia-Romagna in the<br>framework of the research training<br>projects – 41st cycle "Alte competenze<br>per la resilienza e la sostenibilità del<br>territorio e delle comunità - PR FSE+<br>2021/2027 Priorità 2. Istruzione e<br>Formazione Obiettivo specifico e), Azione<br>n. 2 - Transizione Ecologica" pursuant to<br>the notice approved by Regional Council<br>Resolution No. 344 of 10/03/2025 -<br>funding approved by Regional Council<br>Resolution n. 732 of 19/05/2025 – CUP<br>J33C25000520006 | 1 | Application of parallel<br>computing to Mobility Digital<br>Twins  |
| 12 | PhD Scholarship | Funded by the Department of Civil,<br>Chemical, Environmental, and Materials<br>Engineering with funds made available by<br>the project FIS2 "TOSSTO -<br>Transdisciplinary design Of Sustainable<br>composite STructures for supporting the<br>decision-making and resilience of the<br>society of the future" CUP<br>J53C25000610001 – Ref. prof. Nicolas<br>Fantuzzi – (D.D. 7206 of 17/04/2025 e<br>D.D. MUR 2624 of 12/02/2025)  | 4 | Development of innovative and<br>sustainable composite<br>materials, combining high<br>physical-mechanical<br>performance with the use of<br>biopolymers and<br>reinforcements from renewable<br>sources. Sustainability will be<br>assessed through Life Cycle<br>Assessment and experimental<br>laboratory testing |
| 13 | PhD Scholarship | Funded by the Department of Civil,<br>Chemical, Environmental, and Materials<br>Engineering with funds made available by<br>the project FIS2 "TOSSTO -<br>Transdisciplinary design Of Sustainable<br>composite STructures for supporting the<br>decision-making and resilience of the<br>society of the future" CUP<br>J53C25000610001 – Ref. prof. Nicolas<br>Fantuzzi – (D.D. 7206 of 17/04/2025 e<br>D.D. MUR 2624 of 12/02/2025)  | 2 | Developing transdisciplinary<br>models which couples physico-<br>mechanical models with socio-<br>economic and environmental<br>variables for the decision-<br>making process in the industry<br>for an optimized production<br>and marketing of a product<br>with small impact on a global<br>scale                 |
| 14 | PhD Scholarship | Funded by the Department of Civil,<br>Chemical, Environmental, and Materials<br>Engineering with funds made available by<br>the project of the Norwegian Research<br>Council - Centre of Excellence for Carbon<br>Capture and Storage: "gigaCCS -<br>Accelerating the deployment of CCS at<br>gigatonne scale for net-zero emissions by<br>2050"  | 3 | Development of safe and<br>sustainable processes and<br>technologies for CO2 capture<br>from diluted sources and<br>medium/small emitters  |

| 15 | Apprenticeship<br>PhD position | Appreticeship PhD position with Centro di<br>ricerca e sperimentazione per l'industria<br>ceramica (the PhD candidate must sign an | 4 | Development of new ceramic<br>materials for building<br>sustainability |
|----|--------------------------------|--|---|--|
|    |                                | apprenticeship contract starting from  |   |  |
|    |                                | 01/11/2025 and adhere to it until  |   |  |
|    |                                | 31/10/2028, with the exception of period   |   |  |
|    |                                | of suspension resulting in the   |   |  |
|    |                                | postponement of the legal duration of the  |   |  |
|    |                                | course). The doctoral activities will mainly   |   |  |
|    |                                | take place in: Centro di ricerca e   |   |  |
|    |                                | sperimentazione per l'industria ceramica   |   |  |

The yearly gross amount of the scholarships awarded for the PhD Programme in "Civil, Chemical, Environmental and Materials Engineering" is €19,367.

All winners of PhD positions must fulfil the study and research obligations decided by the Academic Board, as well as the obligations set out in the relevant regulations, in the call for applications, in the funding schemes and in any agreements relating to specific positions.

## Admission Exams

|                           | DATE AND TIME   | RESULTS                          |
|---------------------------|---|----------------------------------|
| Qualifications evaluation | Applicants' participation is not required   | Available from <b>12/07/2025</b> |
| Oral examination          | Date: starting from 17/07/2025 – 9.30 a.m. CEST<br>Place: Remotely, using Microsoft Teams | Available from <b>22/07/2025</b> |

The results of the qualifications and research proposal evaluation, as well as the oral examination detailed schedule, shall be available on the webpage <u>Studenti Online</u> (select "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.

During the oral examination, applicants will express their interest in one or more PhD positions linked to specific research topics.

## Required and Supporting Documents to be attached to the application

Only documents in Italian or English will be considered valid and will be assessed by the Admission Board. Identity documents and diplomas/degree certificates issued in a language other than Italian or English must be accompanied by an official translation. The translation must be carried out by an authorized body or by the awarding university. Only qualifications obtained in the last 5 years will be taken into account, with the exception of university degrees. 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. Applicants are required to attach the <u>CV Summary</u> , as first page of the CV (see form at the bottom of the present document).   |  |
| 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  | <ul> <li>Multi-annual research proposal, with special emphasis on the activities to be completed during the first year of the programme. The proposal must meet the following requirements:</li> <li>it must mention on the cover page the Curriculum (1,2,3 or 4) the applicant is interested to and the proposal is about</li> <li>it cannot exceed 20,000 characters, including spaces and formula possibly used. This character count does not include: the title of proposal, the table of content, references and images (such as graphs, diagrams, tables, etc if present)</li> </ul> |  |

|                       | <ul> <li>it must include: the state of the art; description of the proposal; expected results; outline of the proposed findings assessment criteria; references.</li> <li>The research proposal 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.</li> </ul>  |
|-----------------------|---|
| SUPPORTING DOCU       | MENTS   |
| Thesis abstract       | Abstract of the <b>second cycle degree thesis.</b> Graduands applicants may submit an abstract of the thesis to be defended. 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.  |
| Personal<br>Statement | The statement shall include the reasons prompting the applicant to attend the PhD<br>Programme and those <b>relevant experiences and research interests</b> that make the applicant<br>suitable for the specific PhD Programme (3,000 characters maximum, including spaces).  |
| 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> <li>Postgraduate vocational training programmes relevant to the PhD Programme main research topics</li> <li>Teaching activities carried out at academic level</li> <li>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</li> <li>Work activity</li> <li>Curricular or non-curricular professional internships</li> <li>Documents attesting the applicant's foreign languages proficiency</li> <li>Study periods completed by applicants outside their countries 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

| Qualifications evaluation    | University degree final mark and Weighted Average Mark (WAM). Graduands shall be evaluated according to the Weighted Average Mark (WAM)                       | 20 points max |
|------------------------------|---|---------------|
|                              | Publications  | 3 points max  |
|                              | Other evaluable documents   | 2 points max  |
| Research proposal evaluation | Scientific value and ground-breaking nature of the proposal, coherence with the specific research topics (as for available PhD positions in the current call) | 12 points max |
|                              | Structure of the proposal   | 8 points max  |
|                              | Proposal feasibility in the context of the PhD programme  | 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 | 20 points max |
| to the available PhD positions  |               |

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 <u>University website</u>, selecting the relevant PhD Programme > "More information".

| CV SUMMARY OF THE CANDIDATE (to be attached to the CV)   |
|--|
| Surname  |
| First name   |
| Place and date of birth  |
| Curriculum of interest for the Doctorate in Civil, Chemical, Environmental and Materials Engineering (select one):   |
| $\square$ 1. Engineering of infrastructure, resources and territory  |
| $\square$ 2. Structural and geotechnical engineering   |
| □ 3. Chemical and process engineering  |
| $\square$ 4. Materials engineering and industrial biotechnology  |
| TRAINING   |
| Bachelor's degree (if more than one, repeat this section as needed)  |
| Degree in:   |
| Year of graduation:  |
| University:  |
| Country:   |
| Formal duration of the course: (years or fractions)  |
| Weighted average of the marks obtained in the exams (GPA):   |
| Minimum mark for sufficiency   |
| Maximum possible mark  |
| Average mark achieved by students <sup>1</sup> :; reference set considered (e.g. degree course / subject area /  |
| university):   |
| If the course provides for an overall final grade / verbal judgment (exams + final test) other than the GPA of the exami   |
| and the final test only:   |
| Evaluation / mark achieved:  |
| Grading scale adopted / minimum and maximum achievable mark:   |
| Master's degree or single-cycle master's degree (if more than one, repeat this section as needed) Master in:   |
| Year of graduation:  |
| University:  |
| Country:   |
| Formal duration of the course: (years or fractions)  |
| Weighted average of the marks obtained in the exams (GPA):   |
| Minimum mark for sufficiency   |
| Maximum possible rating  |
| Average mark achieved by students <sup>1</sup> :; reference set (e.g. degree course / subject area / university):  |
|  |
| if the course provides for an overall final grade / verbal judgment (exams + final test) other than the GPA of the examinate the final test other than the GPA of the examination of the |
| and the final test only:   |
| Evaluation / mark achieved:  |
| Grading scale adopted / minimum and maximum achievable mark:   |
|  |

NOTES

<sup>1</sup> If the information is available. The average mark or the mark of 50% percentile (median) can be reported [specify which one].