



PhD PHD PROGRAMME TABLE 40TH CYCLE

ERRATA CORRIGE

Section "Available Positions and Scholarships" integrated on 11/06/2024

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| PROGRAMME'S NAME | ELECTRONICS, TELECOMMUNICATIONS AND INFORMATION TECHNOLOGIES ENGINEERING |
| DURATION | 3 years |
| PROGRAMME START DATE | 01/11/2024 (DD/MM/YYYY) |
| LANGUAGES | English |
| COORDINATOR | Prof. Aldo Romani (aldo.romani@unibo.it) |
| PhD POSITIONS | 18 |
| ADMISSION PROCEDURE | Qualifications and Research proposal evaluation Oral examination |

Available Positions and Scholarships

| Pos. n. | Financial Support | Description | Topic-specific positions |
|---------|------------------------|---|---|
| 1 | <i>PhD scholarship</i> | Totally funded by the University of Bologna general budget | |
| 2 | <i>PhD scholarship</i> | Totally funded by the University of Bologna general budget | |
| 3 | <i>PhD scholarship</i> | Totally funded by the University of Bologna general budget | |
| 4 | <i>PhD scholarship</i> | Totally funded by the University of Bologna general budget | |
| 5 | <i>PhD scholarship</i> | Totally funded by the University of Bologna general budget | |
| 6 | <i>PhD scholarship</i> | Funded by the University of Bologna general budget and by the Department of Electrical, Electronic, and Information Engineering "Guglielmo Marconi" | |
| 7 | <i>PhD scholarship</i> | Funded by the Department of Electrical, Electronic, and Information Engineering "Guglielmo Marconi" | |
| 8 | <i>PhD scholarship</i> | Funded by the Department of Electrical, Electronic, and Information Engineering "Guglielmo Marconi" | |
| 9 | <i>PhD scholarship</i> | Funded by the EU – NextGenerationEU with funds made available by the National Recovery and Resilience Plan (NRRP) – M4C2I1.3 by Partenariato Esteso 15 - Space It Up! Project (topic 15-PNRR "Space activities") - CUP J53C24000580006 | Design and characterization of MMIC power amplifiers for Ka-Q band satellite communications |
| 10 | <i>Research Grant</i> | Provided by Provided by the Department of Electrical, Electronic, and Information Engineering "G. Marconi". The research grant will have a duration of 12 months, renewable up to 36 months, and gross percipient amount of €19,456.30. | Modeling and characterization of galvanic isolation in BCD technology |
| 11 | <i>Research Grant</i> | Provided by the Department of Electrical, Electronic, and Information Engineering "G. Marconi" with funds made | Design of an analog hardware |

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| | | available by the project HORIZON-KDT-JU-2021-1-IA TRISTAN "Together for RISC-V Technology and Applications" (ref. Prof. Davide Rossi) GA 101095947 CUP J53C22004780005. The research grant will have a duration of 12 months, renewable up to 36 months, and gross percipient amount of €21,888.34 per year. | accelerator implementing in-memory computing based on PCM memory for RISC-V based multi-core cluster |
| 12 | Research Grant | Provided by the Department of Electrical, Electronic, and Information Engineering "G. Marconi" with funds made available by the project HORIZON-KDT-JU-2021-2-RIA EdgeAI "Edge AI Technologies for Optimised Performance Embedded Processing" (ref. Prof. Andrea Acquaviva) GA 101097300 CUP J33C22004280003. The research grant will have a duration of 12 months, renewable up to 36 months, and gross percipient amount of €21,628.93 per year. | Neuromorphic computing technologies for cyber-physical systems |
| 13 | Research Grant | Provided by "Ercolo De Castro" Advanced Research Center on Electronic System - ARCES. The research grant will have a duration of 12 months, renewable up to 36 months, and gross percipient amount of €19,456.30 per year. | TCAD simulations of ESD protection cells in Smart Power technology and performance analysis |
| 14 | Research Grant | Provided by "Ercolo De Castro" Advanced Research Center on Electronic System - ARCES. The research grant will have a duration of 12 months, renewable up to 36 months, and gross percipient amount of €19,456.30 per year. | Machine Learning Assisted Spectral Sensors for Biomedical Applications |
| 15 | Research Grant | Provided by "Ercolo De Castro" Advanced Research Center on Electronic System - ARCES. The research grant will have a duration of 12 months, renewable up to 36 months, and gross percipient amount of €21,077.66 per year. | Integrated micropower converters in BCD technology |
| 16 | Research Grant | Provided by "Ercolo De Castro" Advanced Research Center on Electronic System - ARCES with funds made available by the project JU-KDT - ISOLDE "High Performance, Safe, Secure, Open-source Leveraged RISC-V Domain-Specific Ecosystems" HEU_2022_ISOLDE_CONTI_F_01 (ref. Dr. Francesco Conti) GA 101112274 CUP J53C23001570007. The research grant will have a duration of 12 months, renewable up to 36 months, and gross percipient amount of €21,628.93 per year. | AI technologies for cybersecurity in cyber-physical systems |
| 17 | Research Grant | Provided by the Department of Electrical, Electronic, and Information Engineering "G. Marconi" with funds made available by the project H2020-JTI-EuroHPC-2020-01 - The European PILOT "Pilot using Independent Local & Open Technologies" (ref. Prof. Davide Rossi) GA 101034126 CUP B22C22000230008. The research grant will have a duration of 12 months, renewable up to 36 months, and gross percipient amount of €21,888.34 per year. | RISC-V Based Neural Acceleration in High-Performance Systems for Space Applications |
| 18 | Research Grant | Provided by the Department of Electrical, Electronic, and Information Engineering "G. Marconi" with funds made available by the project H2020-JTI-EuroHPC-2020-01 - The European PILOT "Pilot using Independent Local & Open Technologies" (ref. Prof. Davide Rossi) GA 101034126 CUP B22C22000230008. The research grant will have a duration of 12 months, renewable up to 36 months, and gross percipient amount of €21,888.34 per year. | High-Performance RISC-V Processors for Automotive Applications |

The number of positions and scholarships may be incremented in case additional funding becomes available, notwithstanding the terms of the application process in the Call. Any amendment, update or integration of the Programme Table will be published on the University website, even after the Call for applications has expired. Any further PhD positions shall be integrated in the PhD Programme Table within ten days before the oral examination.

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.

Admission Exams

| | DATE AND TIME | RESULTS |
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| Qualifications and research proposal evaluation | Applicants' participation is not required | Available from 08/07/2024 |
| Oral examination | Date: starting from 16/07/2024 – 3.00 p.m. CEST Place: Remotely, using Microsoft Teams | Available from 26/07/2024 |

The results of the qualifications and research proposal evaluation shall 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) together with the oral examination detailed schedule. **No personal written communication will be sent to applicants concerning the examinations results.**

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

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 | |
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| Identity document | Valid identity document with photo (i.e. identity card, passport) |
| Curriculum Vitae | The Curriculum Vitae must be drawn up using the CV Form , downloadable in .docx from the University website (select the PhD Programme → "More information", then check "Notices" at the bottom of the page). A 5 points penalty on the total qualification evaluation score shall be applied to applicants not using the said CV Form, or in case of missing pieces of information. |
| 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). In addition to the above-mentioned documents, summary information on the above-mentioned qualifications must in any case be provided in the appropriate section of the Curriculum Vitae, respecting the proposed format. |
| 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 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 following sections and it must be drawn-up according to the maximum lengths of each section: <ul style="list-style-type: none"> o context and motivation for the project (max. 1,000 characters) o state of the art (max. 2,500 characters) o description of the research proposal (max. 7,500 characters) o expected results (max. 3,500 characters) |

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| | <ul style="list-style-type: none"> ○ articulation of the proposal and timeframe (max. 2,000 characters) ○ proposed criteria for verifying the results achieved (max. 3,500 characters) ○ bibliography <p>There will be a penalty of up to 5 points on the overall score for the evaluation of the research proposal in the event of formats or lengths different from the above.</p> <p>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.</p> |
| SUPPORTING DOCUMENTS | |
| Other relevant degrees | <p>Documents attesting any additional university qualifications in subjects related to the research areas of the PhD programme (such as, by way of example, Postgraduate vocational programmes and/or specialisation programmes, etc.).</p> <p>In addition to the above-mentioned documents, summary information on the above-mentioned qualifications must in any case be provided in the appropriate section of the Curriculum Vitae, respecting the proposed format.</p> |
| Publications | <p>Up to 3 scientific publications relevant to the research proposal or to the main research areas of the PhD programme (monographs, articles in scientific journals, specific contributions in volumes, conference papers, etc.).</p> <p>The details of the publications must be indicated in the appropriate section of the Curriculum Vitae, respecting the proposed format. For each publication submitted, please attach a copy in .pdf format (pre-print, post-print or editorial versions are acceptable). For publications accepted and not yet made available or in print, please attach a copy of the letter of acceptance.</p> |
| Other documents | <p>Documentation of activities, experiences and other qualifications, relating to research areas relevant to the PhD programme, with a duration of at least 6 months, such as, but not limited to:</p> <ul style="list-style-type: none"> - 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 - Curricular and non-curricular training internships - Other qualifications attesting the suitability of the applicants (scholarships, prizes, etc.) <p>In addition to the above-mentioned documents, summary information on the above-mentioned qualifications must in any case be provided in the appropriate section of the Curriculum Vitae, respecting the proposed format.</p> |
| Reference letter | <p>No more than 1 reference letter signed by Italian and international academics and professionals in the research field, which do not form part of the Admission Board, attesting the following:</p> <ul style="list-style-type: none"> - the specific circumstances of the collaboration on which the reference letter is based; - the duration of the collaboration; - the applicant's aptitude for scientific research and the relevance of the activities carried out. <p>Letters shall be uploaded following the procedure detailed in the Call for Applications (Art. 3.2).</p> |

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

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| Qualifications evaluation | First (Bachelor's) and Second cycle degree (Master's): final mark and relevance to the main research areas of the PhD programme. Graduands shall be evaluated according to the Weighted Average Mark (WAM) | 16 points max |
| | Publications | 5 points max |
| | Other evaluable documents | 5 points max |

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| Research proposal evaluation | Scientific value and ground-breaking nature of the proposal | 8 points max |
| | Structure of the proposal | 8 points max |
| | Proposal feasibility and relevance to the main research areas of the PhD programme | 8 points max |

2. Oral examination

Minimum score for eligibility: 30 points, Maximum score 50 points

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| Research proposal presentation | 20 points max |
| General knowledge of the research proposal's main topics and of the research topics linked to the available PhD positions | 20 points max |
| Insights into other qualifications, scientific publications and previous experience, scientific awards and recognitions | 5 points max |
| English language proficiency | 5 points max |

The oral examination consists in the **presentation of the submitted research proposal**. It 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. An insight into the other submitted documents will be carried out, as well as an assessment of an adequate English language proficiency.

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".