AUTOMATIC CONTROL AND OPERATIONS RESEARCH

Coordinator
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Website

Duration
3 years

Academic year
2013/2014

Programme start date
01/01/2014

Main Department
Department of Electrical, Electronic and Information Engineering «Guglielmo Marconi»

Associated University
Tongji University, Shanghai, China

Research topics
- Automatic control
- Operations research
- System and control theory
- Nonlinear control
- Geometric approach to control
- Industrial robotics
- Mote control
- Diagnosis of dynamic systems
- Identification of dynamic systems
- Air traffic control
- Combinatorial optimization
- Graph theory
- Transportation and logistic problems
- Packing and cutting problems
- Electric actuation

Requirements and admission procedures

Requirements
An Italian university degree (laurea specialistica/ magistrale - 3+2 years) or pre-reform degree (vecchio ordinamento - 4 years) or an equivalent degree obtained abroad. Also applicants whose degree will be awarded no later than December 31, 2013 can participate to the selection procedures.

Admission procedures
Evaluation of academic qualifications and research project
- Oral examination

Notes on admission
For applicants residing abroad, the oral examination can be done remotely through video-conference based on the IP protocol (such as through Skype with webcam). In this case, at the time of application for admission, applicants should indicate the choice of this mode for the oral examination and indicate a valid address/contact. The request must be authorized by the Admission Board upon verification of the conditions needed to ensure the proper conduct of the test (via a trustee, who will verify the applicant's identity and will be staying on the applicant's site during the exam).

The applicant should contact the Admission Board at the Skype address indicated by the President of the Admission Board in order to agree a timetable to carry out of the oral examination, on days specified for the oral examination. The applicant must ensure his/her availability to the address indicated in the application beginning at the agreed hour and for the next two hours.

In case the applicant is not found for 2 times by members of the Admission Board, he/she will be considered as definitely not registered with the oral exam.

Mandatory documents to be enclosed with the online application (failure to comply with such requirements will result in the exclusion from the competition)

1. CV
2. copy of Bachelor’s and Master’s degree, list of examinations taken with grades and final mark (in Italian or English)
3. only for those who do not hold a Master’s degree when submitting the application: copy of the exams taken with grades

For documents listed at points 2. and 3., please note that:
- for degrees obtained in Italian Universities: upload a SIGNED self-declaration;
- for degrees obtained in non-EU Countries: upload the degree certificate issued by the relevant University;
- for degrees obtained in EU countries (except Italy): you can either upload a SIGNED self-declaration or the degree certificate issued by the relevant University, translated in Italian or English;
- all documents must contain the following information: personal data, name of the University, degree name, final score, transcript (see art. 2 of the call).
4. research project that the applicant would conduct during the PhD Programme, focusing on one of the research topics of the PhD programme (max length: 1,000 words; for details, see the PhD’s website)

Other documents to be enclosed, if available
- Publications
- Any other relevant document
- Abstract of the Master dissertation (max length 1000 words)
- Up to 2 reference letters (to be sent through the procedure available at the URL http://studenti.unibo.it)

Agenda

<table>
<thead>
<tr>
<th>Description</th>
<th>When</th>
<th>Where</th>
<th>Time</th>
</tr>
</thead>
<tbody>
<tr>
<td>Evaluation of academic qualifications and research project</td>
<td>05/11/2013</td>
<td>Scuola di ingegneria ed Architetture, Viale Risorgimento, 2 40136 Bologna</td>
<td>applicant presence not requested</td>
</tr>
<tr>
<td>Oral exam</td>
<td>12/11/2013</td>
<td>Scuola di ingegneria ed Architetture, Viale Risorgimento, 2 40136 Bologna</td>
<td>3 p.m.</td>
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Assessment criteria

Total score: 100/100

1. **Evaluation of academic qualifications and research project**
   - minimum score required for the admission to the oral examination: 30
   - maximum score: 50
   Score is assigned as follows:
   - evaluation of the degree mark (for applicants who have a university degree at the time of submission of the application) or evaluation of the university exams taken with grades (for applicants who still not have a university degree at the time of submission of the application) (max 10 points)
   - Master dissertation (max 10 points)
   - research project (max 20 points)
   - publications and other qualifications (max 10 points)

   The results of the assessment of academic qualifications and research project will be posted on the bulletin board of the Department and on the site [http://studenti.unibo.it](http://studenti.unibo.it), restricted access by University credentials (by selecting: sintesi delle richieste in corso → vedi dettaglio → risultati prova).

2. **Oral examination**
   - minimum score required in order to be listed in the final ranking: 30
   - maximum score: 50

   The oral examination will focus on the explanation and discussion of the applicant’s research project.

   The oral examination will assess the candidate’s aptitude for scientific research, as well as her/his general knowledge about the research topics of the PhD Programme.

   The results of the oral exam will be made public by posting them on the bulletin board of the Department and on the site [http://studenti.unibo.it](http://studenti.unibo.it) (by selecting: sintesi delle richieste in corso → vedi dettaglio → risultati prova).

   The Admission Board will not send any communication to the applicants about the outcome of the tests. It is the responsibility of the applicants to be informed on the outcome (see art. 6 of the call).

### Language requirements

During the oral exam will be assessed the knowledge of the following foreign language: English.

The admission procedures can be carried out either in Italian or English, depending on the applicant’s choice. For foreign applicants the knowledge of Italian is not required.

### Positions and scholarships

**Total number of positions:** 8, of which:

- 2 positions with scholarship granted by University of Bologna
- 2 positions with scholarship “Fondo Giovani 2012” granted by MIUR, committed to the Scope of Investigation 4 “Advanced manufacturing systems with impact in the machinery industry as well as to “Made in Italy” manufacturing areas as textile, clothing and industrial mechanics”
- 4 positions without scholarship