

The Doctoral Degree in Automatic Control, Robotics and Computer Vision (ARV) is part of the postgraduate courses offered by the Universitat Politècnica de Catalunya · BarcelonaTech (UPC).

The ARV programme has been adapted to the European Higher Education Area (EHEA). From the origin of the ARV programme, it has always obtained the Quality Mention of the Spanish Ministry of Education, and the Excellence Mention when candidates for these awards were called.

As the name suggests, the ARV programme provides a frame for the production of doctoral theses in the fields of Automatic Control, Robotics and Computer Vision. These areas are fundamental in traditional industrial environments as well as in many current service applications. The research works are done under the supervision of the faculty and research staff of the programme, having at their disposal the research infrastructures from the units involved.



UNIVERSITAT POLITÈCNICA  
DE CATALUNYA  
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## DOCTORAL PROGRAMME

### Automatic Control, Robotics and Computer Vision



## Structure

The main activity in the ARV programme is the development, writing and defence of the doctoral thesis.

The maximum duration of full-time doctoral degree studies is three years, from admission to thesis defence. A one-year extension and a further one year extraordinary extension may be authorised.

With the permission of the academic committee, students may pursue the doctoral degree on a part-time basis, in which case the maximum duration is five years, from admission to thesis defence. A two-year extension and a further one-year extraordinary extension may be authorised.

## Objective

The aim of the Automatic Control, Robotics and Computer Vision doctoral programme is to provide solid training complementary to the knowledge gained by students in previous stages and that equips them to carry out scientific research as well as to work in highly specialised environments on advanced automation topics. It is hoped that the doctoral students will develop the ability to devise innovative solutions based on solid theoretical knowledge and the application of new technologies.

## Keywords

Digital control, real-time control, non-linear control, power converters, robot coordination, renewable energies, industrial engineering, artificial intelligence, logistics, object grasping and manipulation, mechanical hands, quantitative methods of management, industrial robotics, medical robotics, service robotics, mobile robotics, hybrid systems, teleoperation, systems theory, computer vision.

## Admission

The eligible candidates for the ARV doctoral programme are:

- Individuals holding an official Spanish bachelor's degree (or equivalent) and a master's degree.

However, candidates in any of the following circumstances are also eligible:

- Individuals holding an official university degree from Spain or any other country in the European Higher Education Area (EHEA) that qualifies them for a master's degree, provided they have also completed a minimum of 300 ECTS credits of official university coursework overall, of which at least 60 must be at the master's degree level. For individuals holding a second-cycle degree previous to EHEA, please see the web of the programme for specifications.
- Individuals holding a degree from a foreign education system, providing that it can be shown that the university in question offers a level of training equivalent to that of the official Spanish master's degree and that, in the issuing country, individuals holding the degree in question are eligible for doctoral degree courses.
- Individuals holding another Spanish doctoral degree.

Each candidate must have the support of a member of the ARV faculty and research staff, who will be his/her tutor and, if it is the case, his/her thesis advisor. On the web of the programme, there is a list of the ARV faculty and research staff with their contact data and research areas.

The candidates have to register on the on-line application for admission and attach all the required documentation, which is listed on the web of the ARV programme.

## Participating Units

**ESAI** Departament d'Enginyeria de Sistemes, Automàtica i Informàtica Industrial



Institut d'Organització i Control de Sistemes Industrials



Institut de Robòtica i Informàtica Industrial



## Contact

**Àrea de Doctorat**  
Av. Diagonal, 647  
08028 Barcelona, Spain

Phone: +34 93 401 66 54  
e-mail: [doctorat.arv@upc.edu](mailto:doctorat.arv@upc.edu)  
<http://arv.phd.upc.edu>



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