

# For prospective students

Suomeksi | På svenska

The main purpose of doctoral education is to teach the student to create new scientific knowledge via scientific methods and theories. During the research and studies you will learn what it takes to be a professional academic researcher.

If you consider applying for doctoral studies, you should deliberate at least these questions:

- Doctoral degree is a basic requirement for a career in academia. What are your career plans and do they demand a doctoral degree?
- What are your motives to apply for doctoral studies? To clarify your thoughts, read this [essay of Purdue University](#).
- To make a doctoral dissertation takes at least 3-4 years. Are you persevering enough?
- What kind of knowledge, skills and advantageous contacts you already possess to help you with your future studies?
- What would you still need to acquire?
- Are you willing to continually challenge yourself and your knowledge in order to learn more?
- Are you ready to put a strong effort on learning various communication skills, write scientific papers and make conference proceedings?
- Do you want to learn and develop new scientific knowledge also in those fields that you first did not even think about?
- Use Research Gate and Google Scholar to find out which research groups do active research on the topics which match your interest. Do they have open position(s) for new doctoral students or do you have your own funding, such as national funding?

*Warning:* active scientific research work can cause positive addiction. It is a proven fact that professional researchers work longer hours and retire later than the professionals in many other fields.

Doctoral education is actually an apprentice in close collaboration with your thesis advisor(s) and supervising professor. You will spend 3-4 years working intensively on research topic, and complete this with your intellectual piece of work, i.e., doctoral dissertation. Along the road, you will be involved with theory courses, seminars, group activities, teaching undergraduates and supportive tasks needed to make your department and research group able to operate.

## Doctoral studies are not the only way to improve and maintain your knowledge of science and technology

- With the right to pursue [non-degree studies](#) you can improve your professional know-how and participate to the doctoral level courses at Aalto University.
- Doctoral level courses pursued after the Master's degree can later be included to your doctoral studies.

## Doctoral Programme in Electrical Engineering

The goal of the programme is to train doctors in traditional electrical engineering, the energy sector, biomedical engineering, robotics, nanotechnology and communications engineering, to mention few, to serve in the academic world, public sector and industry and commerce.

<b>Target degree</b>	Doctor of Science (Technology) (equivalent of a PhD)
<b>Study time</b>	Four years (when studying full-time)
<b>Application period</b>	Twice a year (March and September)

## What can you study?

In Aalto Doctoral Programme in Electrical Engineering you can complete the degree of Doctor of Science (Technology) in one of the following [research fields](#)

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- Acoustics and Audio Signal Processing
- Advanced Materials and Photonics
- Applied Electronics
- Automation, Systems and Control Engineering
- Bioelectronics and Instrumentation
- Communications Engineering
- Electromagnetics and Circuit Theory
- Electromechanics
- Electronics Integration and Reliability
- Illumination Engineering and Electrical Building Services
- Information Theory
- Measurement Science and Technology
- Micro- and Nanoelectronic Circuit Design

- Micro- and Nanosciences
- Network Economics
- Networking Technology
- Power Electronics and Electric Drives
- Power Systems and High Voltage Engineering
- Radio Engineering
- Signal Processing for Communications
- Signal Processing Technology
- Space Science and Technology
- Speech and Language Technology
- User Interfaces

The departments, which are in charge of the doctoral programme's education and research at the School of Electrical Engineering, offer research fields that are based on strong research traditions and research at the highest international level.

## Graduate as doctor in four years

Doctoral education at the School of Electrical Engineering is based on vigorous basic research that forms a strong basis for teaching and both development and innovation activities. The most important part of the education is the research work conducted in a strong research milieu. The theoretical studies that support the research work are tailored individually to suit the different needs of each doctoral student. The dissertations of the School of Electrical Engineering are of very high quality and often contain articles published in publications of the highest international level.

Full-time students can complete the doctoral degree in four years. The most talented students may receive funding from their department or they may fund their studies through projects or grants. The students should discuss funding primarily with their supervising professor.

## International studying environment

Internationality is an integral part of the Aalto's doctoral education in both recruiting and educating doctoral students. The School of Electrical Engineering is well connected with several top-level universities and research institutes in its field.

Aalto University encourages its doctoral students to spend at least six months of their study time abroad. International mobility enhances doctoral students' career possibilities. Visiting a foreign university or research institute often means sharing knowledge and know-how, creating new ideas, expanding international networks, and developing one's professional skills.

## Working life and doctoral degree

Doctors graduating from the doctoral programme have gained the skills required for serving in demanding academic research and teaching positions and to act in expert, development and management positions of the information society. Teaching is often a part of doctoral students' employment contract at the department. Doctoral students can learn a lot by teaching, e.g. social skills, time management, management skills, and a more deep understanding of the subject matter. Our graduates have positions mostly in the academic world, the public sector or in the industry and commerce. More information about the working areas of the graduated doctors from the Doctoral Programme in Electrical Engineering can be found here.

Work titles for graduates

<ul style="list-style-type: none"> <li>• Acoustic's desinger</li> <li>• Assistant/Associate professor</li> <li>• Business analyst</li> <li>• CEO</li> <li>• Cleanroom engineer</li> <li>• Consultant</li> <li>• Data analyst</li> <li>• Development Engineer</li> <li>• Director</li> <li>• Engineer</li> <li>• Entrepreneur</li> <li>• Fellow at CERN</li> <li>• Head of software industry iniatives</li> <li>• IC engineer</li> <li>• Insinöörimajuri</li> <li>• Lead architect</li> <li>• Lead System Designer</li> <li>• Ohjelmistosuunnittelija</li> <li>• Patent engineer</li> <li>• Postdoc researcher</li> <li>• Postdoctoral researcher</li> <li>• Power system engineer</li> </ul>	<ul style="list-style-type: none"> <li>• Principal Scientist</li> <li>• Process Development Engineer</li> <li>• Product Line Manager</li> <li>• R&amp;D Engineer</li> <li>• R&amp;D Manager</li> <li>• Research Scientist</li> <li>• Researcher</li> <li>• Senior associate</li> <li>• Senior engineer</li> <li>• Senior R&amp;D engineer</li> <li>• Senior Researcher</li> <li>• Senior Scientist</li> <li>• Senior software developer</li> <li>• Senior Specialist</li> <li>• Software engineer</li> <li>• Sr. Process Development Engineer</li> <li>• Staff Scientist</li> <li>• Technical specialist</li> <li>• Technical writer</li> <li>• University teacher</li> <li>• Vice President for Academic Affairs</li> <li>• Wireles system architect</li> </ul>
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## Application period twice a year

Those who want to apply to Aalto Doctoral Programme in Electrical Engineering must hold a master's degree in a relevant field completed with a very good academic success. Applicants should have a good command of spoken and written English, and they should have capacity for scientific research work. In addition, applicants must have motivation to complete the doctoral degree within the target time (4 years for full-time students), and conduct research at the highest international level.

Before submitting the application, each applicant must contact [a professor in charge of their intended research field](#) to discuss the possible supervision of doctoral studies. Applicants are urged to ensure that their expertise and research interests are commensurate with the research group (and those of the supervising professor of their studies) that they apply to.

Both full-time applicants and part-time applicants can apply twice a year. [More information on applying and eligibility](#).