

[Study options](#)

## Communications Engineering, Master of Science (Technology)

For applicants

Our world is digitally revolutionised, highlighting the importance of networks that allow technologies to work together seamlessly. The Communications Engineering major covers both theoretical fundamentals and the hottest hands-on applications of communications technology – 5G and beyond, IoT, machine learning, ambient intelligence, and wearable computing.



Get a Master's Degree in Communications Engineering at Aalto University – the leading international and multidisciplinary university in the Nordics and Europe.

**Degree:**  
Master of Science (Technology)

**Duration:**  
2 years, full-time

**Credits:**  
120 ECTS

**Application period:**  
1 Dec 2025 – 2 Jan 2026

**Eligibility:**  
Relevant Bachelor's degree

**Organising school:**  
School of Electrical Engineering

**Language of instruction:**  
English

**Field of study:**  
Technology and Engineering

**Tuition fees:**  
For non-EU/EEA citizens,  
€17000/y (Master's studies)  
[Read more](#)

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## Webinar | Communications Engineering

In this webinar, the programme representatives introduce Aalto University, give a programme overview, explain the programme structure and content, discuss career opportunities, and answer questions from the audience.

→ [Watch the webinar recording](#)



## Description

The world comprises networks that connect people and devices and are a prerequisite for all other technologies to work successfully. Developing, building, and maintaining networks is crucial for our future as new technologies keep emerging, and ICT technology is one of the key enablers of sustainable development. For example, by connecting autonomous vehicles together and allowing them to share data, emissions can be reduced as traffic becomes smoother and more efficient.

Thanks to the large number of chip manufacturers, mobile network vendors, and network operators, Finland offers the perfect, rare ecosystem for engineering modern networks. Here, you get to actually design and build future solutions that will be used by millions.

The Communications Engineering major is part of the Master's Programme in Computer, Communication, and Information Sciences (CCIS). The major prepares students to respond to the global need for modern and better networks. It consists of a strong technological core surrounded by human-centric understanding of user needs and behaviour.

**Upon graduating from the Communications engineering major, you have:**

- **Excellent knowledge of technology fundamentals.** Graduates are experts in the fields of networked systems and wireless communications.
- **In-depth programming skills.** Graduates possess exceptional skills in programming and can work in demanding fields like machine learning and network protocols.
- **Practical experience in the field.** During their studies, students work closely with the industry. Upon graduation, they have both practical know-how and good connections to leading companies.
- **Solid understanding of human-centric computing and communications.** The graduates know what makes communications technology usable and how to improve user experience.
- **Capability to shape the world.** Graduates have the necessary knowledge and tools to influence technological advancements and the future.

## Language of instruction

In the Communications Engineering major, the language of instruction is English.

## Tuition fees and scholarships

The tuition fee for this programme is 17 000 euros per academic year. Citizens of European Union (EU), the European Economic Area (EEA) or Switzerland do not pay tuition fees. Citizens of other countries must pay tuition fees.

Aalto University offers a small number of scholarships in the form of tuition fee waivers to fee-paying students. Scholarships can be awarded to the highest-achieving applicants based on the programme's evaluation criteria. Applicants are ranked according to the criteria outlined on the programme's webpage.

More information on tuition fees and scholarships at Aalto University is available at the [Scholarships and Tuition Fees](#) webpage.

## Structure of studies

Two-year studies in the Communications Engineering major comprise a total of 120 ECTS credits:

- Major studies (60 ECTS)
- Elective studies (30 ECTS)
- Master's thesis (30 ECTS)

All the compulsory and optional major courses are intended to be completed during the first year. The second year is dedicated to elective studies and the Master's thesis. You can choose practically any combination of elective courses – from Aalto as well as other universities in Finland and abroad – that supports your studies and suits your interests. Aalto University Learning Services offer students help in planning their studies.

More information on the programme content and curriculum can be found in the [Student guide](#).

### Teaching methods

In this major, teaching methods consist mainly of lectures, individual and group projects as well as hands-on experiments. Aalto University has its own [Aalto nextG](#) infrastructure that supports research on the development of future mobile networks – especially when it comes to advanced radio communication systems and Internet technologies for 5th generation mobile communication systems and beyond. This infrastructure allows students to experiment with, for example, a 5G test network.

Master's Programme in Computer, Communication and Information Sciences

Courses and curriculum



**Hitesh Monga shaped his path in Aalto from a summer intern to a master's graduate**

29.10.2025 | News



**Student Niki Aarnio: The Communications Engineering study option combines commercial and**

28.4.2020 | News



**Aalto's students' project work utilises LEDs and smartphones for indoor navigation**

14.6.2022 | News

## Specialisations

Depending on their interests and aspirations, students can choose to deepen their understanding on networked systems, wireless communications, or ubiquitous computing.

In the area of networked systems, students learn to design data networks, cloud systems, IoT systems, and services for large enterprises and operators (fixed and mobile) while taking efficiency, scalability, security, and reliability into account. They learn to virtualize networks and manage them on cloud systems, reducing operational costs and easing remote management. A further central topic is environmentally sustainable ICT: how we can build more sustainable digital services, networks, and cloud platforms.

Expertise in wireless communications is developed by studies in modern wireless communication system architectures, fundamentals of communications theory, signal processing, as well as resource and spectrum management. Students learn to understand and develop new technologies for radio access networks beyond 5G.

In the direction of ubiquitous computing, students can learn about key information technologies and operation strategies needed for humans to access data ubiquitously while being mobile. They also get to focus on the utilisation of various sensor and artificial intelligence techniques to make the everyday environment sensitive to user needs.

networking and cloud technologies for 5G mobile networks and beyond, data centres, and e-commerce – impacting both private and public sectors. The main objective is to give our students the ability to empower the society with innovative mobile services, and help Finland retain its competitive edge in the field of mobile communication systems.

## Internationalisation

The learning environment in this major – and the entire Aalto University – is strongly international, and studies are conducted in multicultural groups. The School of Electrical Engineering offers diverse possibilities for student exchange all over the world. Exchange studies can be easily included in the degree e.g. as an international minor.

Communications Engineering students also have the opportunity to take their second-year studies at UPC Barcelona Tech in Spain, or Grenoble INP in France and complete a double degree graduating from both Aalto University and one of the two partner universities.

Other possibilities for developing one's global competence include conducting practical training or the Master's thesis abroad, taking a summer course abroad, acting as a tutor for first-year students, or learning foreign languages.

## Further study opportunities

The degree programme provides eligibility for scientific postgraduate studies in Finland. The skills learned in the programme create an excellent basis for doctoral studies at Aalto University, another Finnish university or top international universities. Doctoral graduates from Aalto University continue to researcher or other academic career or high-level business positions, among other things. Read more about applying for doctoral studies at Aalto University: <https://www.aalto.fi/en/doctoral-education/how-to-apply-for-doctoral-studies>

## Career opportunities

In the digitalised world, communications engineering expertise has an ever-growing importance – almost all our students are already in the working life upon graduation. They work not only at ICT companies, but also at companies from various industries that apply ICT in their operations. Some of the employers are:

- Telecommunications equipment vendors
- Chip manufacturers and radio modem developers
- Network operators
- Large corporations and governmental organisations

The demand for communications engineering experts is high especially in Finland and the other Nordic countries. In this area, there is a strong ICT industry consisting of a large cluster of equipment and infrastructure vendors as well as mobile network operators. In Finland, the biggest employer is Nokia that designs, for example, next generation communications systems.

Aalto University and the Communications Engineering major work closely with the industry, guaranteeing excellent employment opportunities. Students' career paths usually start in the form of an internship, industry project work, or a Master's thesis written for a company. The most successful students are offered the possibility to work in a research group during their studies.

### Riina Kostiainen sliced Nokia's 5G networks for her thesis

In her master's thesis, made  
20.8.2025 | News

### Communications Engineering student Bhavya Omkarappa found her dream job at Ericsson

19.5.2020 | News

### School of Electrical Engineering graduates in working life

Graduates from the School  
School of Electrical Engineering

## Research focus

The Department of Information and Communications Engineering combines different research fields from ICT technology to core electrical engineering. Research is carried out in close cooperation with industry. The research areas include:

- **Human-centric technology.** This area focuses on technology that boosts human capabilities and

assists people in their daily activities. Topics studied include, for instance, ambient intelligence, human-computer interaction (HCI), and mobile cloud computing.

● **Communications and networked systems.** In this research area, the goal is to develop and validate overall systems so that the research results can be eventually deployed to real systems. The research groups working in this area cover all protocol stack levels, including ground-breaking work on physical layer, media access, and Internet scale technologies. The area takes particular pride in that we also deploy and develop hardware and software implementations.

● **Fundamentals of information and communications engineering.** This research area contributes to the specifications of several generations of wireless communication systems. The topics of interest vary from wireless and mobile communications and signal processing to information and communication theory.

You can read more about the research at the Department of Information and Communications Engineering [here](#).

## Co-operation with other parties

Aalto University is well-known for bridging different disciplines – students may choose their elective study modules so that their degree is a combination of science, technology, business, and arts. They can supplement their studies with courses from other Aalto schools and programmes as well as courses offered by other universities, including international. This multidisciplinary environment sparks new ideas, friendships, networks, and every so often, startups.

The Communications Engineering major also has deep industry-academia relationships both in research and teaching. For example, some of the courses have guest lecturers from companies and almost all of the Master's theses are written at a company.

## Get to know us

### Department of Information and Communications Engineering

The department of Information and Communications Engineering has a strong

### More speed for the research of robotic transportation and the Internet of Things – The 5G network has opened in Otaniemi

23.10.2019 | News

### 5G enabled IoT innovations created at IoThon

Students and developers all over Europe took part in the 48-hour hackathon

6.5.2019 | News

### Chat with Aalto students

Curious about life at Aalto University? Our student ambassadors are here to share their firsthand experiences and insights on student

Study at Aalto

## Study-option-specific instructions

Applicants to the programme must meet the [general eligibility and language requirements](#) that are common to all Master's programmes in Aalto University. Applicants meeting Aalto's general eligibility criteria for master's studies are evaluated and ranked according to the evaluation criteria decided in advance for each study option.

The applications to major Communications Engineering, Master's Programme in Computer, Communication and Information Sciences (CCIS) are evaluated based on the following criteria.

This English-version is the master version of the CCIS programme-specific evaluation criteria, and its Finnish and Swedish versions are its translations.

## Evaluation criteria

- 1. Academic performance +
- 2. Relevance of previous studies +
- 3. Recognition and quality of institution +
- 4. Suitability +
- 5. Other areas of competence +

## Evaluation process and requested documents

The evaluation process is described under *Applicant evaluation process*. In addition to obligatory application documents, this study option asks the applicants to submit also the documents listed under *Requested documents*.

- Applicant evaluation process +
- Requested documents +

## Contact information

### Aalto University Admission Services

If you have any questions regarding the application process, application documents or language tests, please contact Aalto University Admission Services

admissions@aalto.fi

### School of Electrical Engineering

For enquiries regarding the content of programme, the studies at the School of Electrical Engineering and the study-option specific application documents please contact

masters-elec@aalto.fi

The application period is open until 2 Jan 2026, 2:30 PM GMT+2

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