MASTER OF SCIENCE IN ELECTRICAL ENGINEERING (COMMUNICATION AND INFORMATION TECHNOLOGY)

120 ECTS CREDITS - LANGUAGE: ENGLISH

The Faculty of Engineering and Architecture (FEA) offers most of its Engineering programmes at Master's level in English. This underlines the international ambition of the faculty, as well as the importance of an international education and multiple language skills for students.

WHAT

The electrical engineer analyses, designs, builds and programs the beating heart of every smart device. These smart devices are drastically changing society, increasing life comfort, safety and even people's life chances. Soon all these smart devices will also be connected through the Internet of Everything (IoE). Would you like to contribute to the rise of the new generation of communicating systems? The Master of Science in Electrical Engineering offers an in-depth training in the domains of electrical and electronics engineering. Learn how GPS systems keep working in a city full of tunnels and buildings of steel and concrete, how to contribute to the rise of the new generation of "smart factories" and even how a new medical progress was enabled by non-invasive diagnostic techniques, microsurgery, implants and brain stimulation.
An electrical engineer shapes the strong evolution towards a 'smart' environment consisting of interconnected devices that exchange information through wired or wireless communication. Some pertinent applications include virtual education, remote surgery, human-centric 6G communication, highly digitised smart cities, industry 5.0, smart grids 2.0, connected robotics and intelligent transportation systems.
Electronic system design typically focuses either on the design of circuits and systems that form the basis of smart devices or on the connectivity between those devices and how communicating devices build much more powerful systems that push the Internet of Everything forward. Students specialise either in Electronic Circuits and Systems (ECS) or in Communication and Information Technologies (CIT). By concentrating on analogue and digital systems, and on communication networks, treating both hardware and software aspects but with a clear focus on electronic components and systems, and designing at the circuit and system level, ours is the only Electrical Engineering programme that covers all hardware aspects of such smart devices and systems."
Moreover, when specialising in Communication and Information Technologies (CIT), you will gain thorough insight in the algorithms that control their sensing, localisation and communication functionality. Both on an individual basis and as part of a team, you are capable of efficiently and methodically developing complex electronic (communications) systems for a broad field of applications, starting from the conception and analysis over the design, implementation, testing and up to the management of such systems. Your designs are based on a firm theoretical foundation and technological knowledge. They are conceived by exploiting state-of-the-art computer-aided design tools. Given the acquired research attitudes and competences, you drive creative or innovative (r)evolutions in industry and in academic research.
Moreover, this study programme provides a broad non-specialist knowledge in other engineering disciplines and in several economical, legal, deontological, ecological, and societal aspects. On top of a sound theoretical base, every year of the programme includes practical projects that gradually enhance your skills in effective teamwork and in acting as skilled team leaders in an industrial research environment.

STRUCTURE

In its entirety, the Electrical Engineering programme consists of two phases: the first three-year programme leads to a Bachelor's degree in Engineering. The subsequent two-year programme awards a Master's degree in Electrical Engineering.
Throughout the Master's programme, students may either choose to deepen or to broaden their scope by compiling a personalised curriculum based on a wide range of elective course units, or by including a (broadening) minor into their curriculum.

LABOUR MARKET

Our programme focuses specifically on research and development, as well as on creation and design in the field of electronics, information and communication technology (ICT). Many companies exclusively accept electrical engineers for the development of the smart systems they are producing and are therefore constantly looking for our highly trained students.

Electrical engineers are mainly responsible for the design and development of data, image and speech processing systems, measurement and sensor technology, robot design, as well as the future ICT infrastructure, including wired, wireless, satellite and vehicular communication systems. Our graduates thrive in large multinational electronics, ICT and telecommunication companies, as well as in a wide range of small and medium-sized enterprises active in the forefront of technology or consultancy. Their degree is highly appreciated for the broad scope of the programme and its strong bond to state-of-the-art research.

The balanced mix between hardware and embedded

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software enables new graduates to play key roles in the development of hardware for smart devices, the future internet, and the internet-of-things, and to have an impact on very important evolutions in society such as green electronics, smart health care and ambient assisted living.

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TOELATINGSVOORWAARDEN VOOR HOUDERS VAN EEN VLAAMS DIPLOMA

1 **Rechtstreeks:**
- Bachelor in de ingenieurswetenschappen, afstudeerrichting: elektronica en informatietechnologie
- Bachelor in de ingenieurswetenschappen, afstudeerrichting: elektrotechniek
- Bachelor in de ingenieurswetenschappen: elektrotechniek

2 **Rechtstreekse toelating voor het volgen van een brugprogramma (horizontale instroom):**

a opleidingen nieuwe structuur:
- Master in de industriële wetenschappen: elektronica en ICT: elektronica
- Master in de industriële wetenschappen: elektronica en ICT: ICT
- Master in de industriële wetenschappen: elektronica-ICT (zonder afstudeerrichting)
- Master in de industriële wetenschappen: elektronica-ICT, afstudeerrichting: ingebedde systemen
- Master in de industriële wetenschappen: elektrotechniek
- Master in de industriële wetenschappen: energie
- Master of Electronics and ICT Engineering Technology

b opleidingen oude structuur:
- Industrieel ingenieur in elektronica

Additional Information on Admission (Flemish Degree)

Information for holders of an academic Bachelor's degree which grants no admission to the programme: there are no longer any preparatory courses organized that give access to the Master's programme in *Electrical Engineering*.
Students who have obtained a Flemish academic bachelor's degree in a closely related field of study (as listed above) can submit a request for exemptions in the *Bachelor of Science in de ingenieurswetenschappen: elektrotechniek* which gives immediate admission to the master's programme. More information: studietrajectIR.ea@ugent.be.

ADMISSION REQUIREMENTS FOR INTERNATIONAL DEGREE STUDENTS

Students who wish to enrol for the Master of Science in Electrical Engineering can enter the programme without any prerequisites if they hold the following diploma: an academic diploma of Bachelor (or Master) of Science in Engineering (university level, minimum of three years), with the main subject in Electrical Engineering or an equivalent to this.

Admission can only be granted after an individual application procedure. The Study Programme Committee will make the final decision whether to accept the application or not. The Study Programme Committee can decide that students need to follow a preparatory course or an individual master's programme, for instance for students with another diploma of Bachelor or Master.
Important: Students who wish to enrol must add the result of a GRE test to their application, more specifically the result of the Quantitative Reasoning of the General Test. The GRE test result will be assessed using the faculty's grading scale.
Information on admission requirements and the administrative procedure for admission on the basis of a diploma obtained abroad, can be found on the following page: www.ugent.be/prospect/en/administration/enrolment-or-registration.

LANGUAGE REQUIREMENTS

Language requirements	Dutch: no language requirements English: CEFR level B2

The language requirements for this study programme can be found on: www.ugent.be/languagerequirements

PRACTICAL INFORMATION

Study programme
studiekiezer.ugent.be/master-of-science-in-electrical-engineering-communication-and-information-technology-en/programma

Information sessions
Graduation Fair
afstudeerbeurs.gent/en/students/further-studies

Enrolling institution
Information on enrolment at Ghent University.

Application Deadline (for International degree students)
For students who **need a visa**: before 1st of April
For students who **do not need a visa**: before 1st of June
Read more

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FACULTY OF ENGINEERING AND ARCHITECTURE

2024-25

Tuition fee

More information is to be found on: www.ugent.be/tuitionfee

Learning path counsellor

studietrajectir.ea@ugent.be

Contact (for international degree students)

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GHENT UNIVERSITY

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