

Master of Applied Engineering

Study programme

Bachelor of Applied Engineering (Academic Bachelor, three years)

First year

Second year

First semester

Second semester

Electro mechanics

Electronics - ICT

Third year

Electro mechanics

Electronics - ICT

Master of Applied Engineering (one year)

Electro mechanics

Electronics - ICT

Electro technology

The Master course starts with a three-year academic Bachelor course consisting of two parts:

- First, three semesters are the same for every student.
 - Then, three semesters with a selection leading to a Master course.
- This choice of courses is offered in semesters 5 and 6.

The Master year with a Master examination (internship and thesis) completes the study.

In the common part of the three semesters there is a general scientific section, featuring mathematics, chemistry and physics, an engineering section with problem solving, and a general skills section. All acquired skills will be tested in a scientific project.

During the third semester we will organise choice guidance, so that you can make an informed choice amongst the four main options: construction, chemistry, electro mechanics and electronics.

In the three following semesters you will develop your scientific disciplinary knowledge according to the main options. You explore and analyse techniques and technologies and you adapt them to real-life problems.

The skills acquired are tested in a technical project or a 'problem solving and design' module.

- Semester 4: separate programme per main option with a limited common part amongst the various Bachelor programmes.
- Semester 5 and 6: the main option chosen is developed further. An extra package is put together according to the Master's study.

The Master year with a Master examination (internship and thesis) completes the study. During the Master year, the chosen specialty will be studied in depth. For the Master examination you must solve a concrete problem on your own, an assignment to be completed at a company or research institution. This study will give you the necessary research skills to successfully complete this task. This way you can show that you are a real industrial engineer.

Master of Applied Engineering, electro mechanics

Electro mechanics is a broad and exciting field. It can be applied everywhere: industrial design, the preparation of industrial production, the design of heating and air conditioning installations, and energy systems. Knowledge of materials, layout techniques, applied mechanics and thermodynamics, electronics, automation and electro technology is of major importance. You learn to take into account requirements for an economic, safe and environmentally conscious management.

In the 'automation' option more emphasis is placed on the electrical, mechanical, pneumatic and hydraulic drive, and power electronics. You will also learn techniques for automating and regulating systems and processes.

In the 'electro mechanics' option more attention is paid to the computer assisted design of products and machines, the application of new materials and modern production techniques, and robotics and CAD/CAM systems.

Master of Applied Engineering, electro-technology

Electro-technology is a dynamic and very important field. Our current society simply cannot live without electricity. It is such that people in various sectors study the consequences of a long-term blackout: communications, traffic, industry, agriculture and food and emergency services. In the near future, the electricity sector will undergo major changes. The production and distribution of electrical energy is already facing new challenges.

The knowledge of electrical components, electronics, automation and electro-technology, and the design of electrical installations are of major importance. The planning of large and reliable distribution grids, the selection of suitable switching devices and managing these physical networks remains a constant worry in our society. You learn to take into account requirements for an economic, safe and environmentally conscious management.

Master of Applied Engineering, electronics - ICT

No other technology has evolved as quickly as information technology. And this evolution just keeps on going. The knowledge of basic electronic of IT is of vital importance.

The knowledge of data and telecommunications, IT, computer systems, networks, electronic devices, automation and applied electronics is important. You learn to take into account requirements of an economic, safe and environmentally conscious management.

In the 'electronics' option more emphasis is placed on electronic technology, switches and systems for analogue and digital signal processing, electronic design methods, drive and power electronics.

In the 'ICT' option we zoom in on a number of additional ICT subjects such as designing websites with a series of scripting languages, graphical programming languages, operating systems and object-oriented programming. Encryption, encoding and spread spectrum as well as wireless communication applications are also addressed.

As an industrial engineer you will quickly come into contact with management. That is why production management, financial management, legislation and certification are part of your programme. And of course, you will then also have an application-oriented knowledge of ICT.

Master of Applied Bio-Engineering

Study programme

First year

Second year Animal life

Third year Agricultural science
Nature and the environment
Horticultural science
Food industry

Master of Applied Bio-engineering (one year)

Agricultural science Animal life
Plant and animal production

Horticultural science Nature and the environment
Horticultural science

Food industry Food technology

The Master course starts with a three-year academic Bachelor course consisting of two parts:

- First, four common semesters.
- Then, two semesters with a selection leading to a Master course.

This choice of courses is offered in semesters 5 and 6.

The Master year with a Master examination (internship and thesis) completes the study.

Master of Applied Bio-engineering programme

The Master year with a Master examination (internship and thesis) completes the study. During the Master year, the chosen specialty will be studied in depth. For the Master examination you must solve a concrete problem on your own, an assignment to be completed at a company or research institution. This study will give you the necessary research skills to successfully complete this task. The Master in Biosciences deals with living matter or producing food for people. Whether the core activities are microorganisms, plants, animals or ecological systems, they are all linked to the chosen Master programme.

Master of Applied Bio-Engineering

Plant and animal production option

Agriculture is about producing plant and animal products on a large scale. You will learn about cultivating field crops such as maize, grass, grain and beets or about animal production, such as cattle, pigs and poultry. Moreover, sustainable agriculture has practices that are not only economically efficient, but also ecologically and socially acceptable without mortgaging the chances of future generations. Depth is therefore needed to understand agriculture as an applied bioscience and to place it in a complex ecosystem. Knowledge is the key to successful cultivation techniques, responsible livestock breeding systems, ingenious machines, top management and thorough land and environment management. For those who want to further specialise in the management of nature reserves, management areas, forests, recreation areas, parks, etc. and explore the agriculture-nature relationship, we offer the study programme 'nature and the environment'.

Animal life option

This option is especially aimed at the domestic animals sector. Animals have always played an important role in the work and lives of people. They keep us company, perform useful tasks or supply milk, meat, eggs and wool. With an emphasis on better production results and animal welfare, agriculturists are still studying food, behaviour and health of domestic animals in a scientific way. This knowledge can also be extended to the field of small domestic animals.

Within families animals have gained a prominent place in the home. Pets also have to answer to the high expectations people place on them. Our highly developed society is prepared to invest time and money in food, care, health and rearing of household pets, having created an entire pet industry. Professionally and academically trained advisors are needed to fill this gap.

Master in Biosciences: Horticultural science Horticultural science option

Typical horticulture usually refers to plants that are usually cared for or cultivated individually. Once you have understood plant physiology and how plants grow and bloom, you can apply this knowledge to cultivating ornamental plants (flowers, ornamental trees), vegetables and fruit (apples, pears and stone fruits) in an economical and environmentally friendly way. You can attempt to apply integrated cultivation techniques not only in strictly controlled environments such as greenhouses, but also in orchards and gardens. Thanks to your ecological inclination you take nature management at heart. But you remain first and foremost an engineer. With planning and managing landscapes,

you are in a position to take on bio technical concepts with the artistic ideas of architects
- as long as it is green.

Nature and environment option

Agriculture and horticulture cultivation, livestock breeding companies and various green areas such as nature, forests, parks and recreation make up Flemish open spaces. The non-production oriented functions of outdoor spaces get increasingly more attention in strongly urbanised regions. It is precisely due to the knowledge and technology required for managing these sites that we offer a 'nature and environment' option. The integration of nature in agriculture provides the setting of a task in the interrelated areas. The student who qualifies for this option will deal with the impact of agrarian and industrial activities on landscape and environment, while applying the best possible techniques.

Master of Applied Bio-Engineering: Food industry Food technology option

Before food products are suitable for consumption they have to be modified and/or processed. For this reason industrial food processing is the work field of the Master in Biosciences, specialised in the food industry. This important industry mainly provides added value to primary products such as cheese, snacks, beer, biscuits and all kinds of meat. Production technology and chemical, biological, physical and microbial quality control are the food industry's main focus. Food safety is the keyword, as procedures are established in globally accredited quality systems. To take on these responsibilities as an engineer you will take courses in food chemistry and food technology, biotechnology, and environment and conservation technology.

Every human and industrial activity has an impact on our living environment. Students who want to work as food engineers in the environmental sector are sure to be interested in the 'nature and environment' programme.