

# Master of Science in Food Technology

Faculty of Bioscience Engineering



# Food Technology

To fulfil its nutritional destiny, food must be both safely produced and safely delivered to its end consumer. This requires, on the one hand, processing technologies for converting edible raw materials into foods with decreased inherent stability, and, on the other, preservation technologies for increasing the stability and shelf life of foods. Based on these considerations, the InterUniversity Programme in Food Technology (IUPFOOD) focuses on two technological dimensions of prime and crucial importance in food processing and preservation:

- the transformation (processing) of raw materials into products suited for human consumption, and
- the role of postharvest and food preservation unit operations in delivering safe and nutritious foods to the end consumer.

These two concerns are directly translated in the focus points of the IUPFOOD programme.



## IUPFOOD

The InterUniversity Programme in Food Technology (IUPFOOD) is jointly organised by KU Leuven and Ghent University (UGent).

IUPFOOD is a two-year academic programme leading to an MSc 'Master of Science in Food Technology' degree. The general objective of IUPFOOD is to provide a multi-disciplinary and specialised professional education in food technology, with special emphasis on postharvest and food preservation engineering on the one hand and food science and technology on the other. Graduates are equipped to become food technology professionals with the necessary technical and managerial knowledge, skills and attitudes to successfully contribute to solving problems related to food security. The IUPFOOD programme focuses particularly on developing countries where food security (delivering enough nutritious, high-quality and safe-to-eat food) is and will continue to be a major concern and key challenge.

The programme builds on KU Leuven's and UGent's combined expertise in research and education in the field of food technology.

## KU Leuven



Situated in the heart of Western Europe, KU Leuven has been a centre of learning for nearly six centuries. Today, it is Belgium's largest university. Founded in 1425, it is one of the oldest and most renowned universities in Europe. As a leading European research university and co-founder of the League of European Research Universities (LERU), KU Leuven offers a wide variety of programmes in English, all supported by high-quality, innovative, interdisciplinary research.

The university caters to more than

40,000 students, of which 16% are international students from more than 140 countries. KU Leuven's doctoral schools organise internationally oriented PhD programmes for over 4,000 doctoral students.

## Ghent University (UGent)

In comparison with other European universities, Ghent University is relatively young. Founded as Rijksuniversiteit Gent in 1817, a year after King William I proclaimed the establishment of three universities in the Southern Netherlands, Ghent University became an autonomous institution in 1991. Today, after decades of uninterrupted growth, Ghent University is one of the leading institutions of higher education and research in the Low Countries. With 38,000 students and 7,100 staff members, Ghent University is an open, committed



and pluralistic university that welcomes all students regardless of their ideological, political, cultural or social background. The university defines itself in a broad international perspective, all the while accentuating its linguistic and cultural individuality.

## Admission requirements

- International applicants must have obtained an academic Bachelor of Science degree from a recognised university, college or institute in a discipline related to the content of the programme. (In developing countries, this typically implies a four-year programme of study.) Candidates are expected to have basic science training (evidenced in the transcripts) in at least three out of four of the following fields: (i) mathematics, statistics and physics, (ii) chemistry and biochemistry, (iii) biology and microbiology and (iv) engineering, with an end result of at least second class upper or equivalent. Each application will be evaluated by the Educational Committee for Admission. All applicants must demonstrate fluency in English (written and oral). Candidates from countries where English is not the language of instruction must have obtained a score of at least 79 on an internet-based TOEFL test or an equivalent score on a similar English proficiency test.
- Direct admission is granted to students who, based on the specific entrance requirements of those programmes, are admitted directly to the Master of Science in Bioscience Engineering: Food Science and Technology (Master (of Science) in de bio-ingenieurswetenschappen: levensmiddelentechnologie) at KU Leuven or to the Master of Science in Bioscience Engineering: Food Science and Nutrition (Master (of Science) in de bio-ingenieurswetenschappen: levensmiddelenwetenschappen en voeding) at UGent, respectively.
- Access is granted to students who, based on the specific entrance requirements of those programmes, are admitted to the Master of Science in Bioscience Engineering: Food Science and Technology (Master (of Science) in de bio-ingenieurswetenschappen: levensmiddelentechnologie) at KU Leuven or to the Master of Science in Bioscience Engineering: Food Science and Nutrition (Master (of Science) in de bio-ingenieurswetenschappen: levensmiddelenwetenschappen en voeding) at UGent after the successful completion of a **preparatory programme** (15 to 60 ECTS) or **bridging programme** (45 to 90 ECTS).



# Programme

In the first year of the Master's programme (60 ECTS), you will acquire in-depth knowledge of food science, engineering and food engineering. All students complete the same curriculum in the first year, ensuring a common knowledge base among the diverse group of students. First-semester courses are held at UGent while second-semester courses are held at KU Leuven.

The second year of the Master's programme (60 ECTS) provides a broader knowledge in food technology in general and an in-depth understanding in either 'Postharvest and Food Preservation Engineering' (PFPE) or 'Food Science and Technology' (FST), depending on the major you choose. The second year of the programme consists of specific courses in each major (PFPE and FST) (18 ECTS), elective courses (12 ECTS) and thesis research (30 ECTS). The major, the elective courses and the thesis topic are chosen after the completion of the first year. With respect to the elective courses, you may choose from the courses of the other major and the additional electives offered. This enables you to compile a personalised study curriculum according to your individual needs and interests.

The Master of Science in Food Technology (120 ECTS) consists of four major segments:

1. In-depth education segment (60 ECTS)
2. Specialisation segment (18 ECTS)
3. Elective courses segment (12 ECTS)
4. Master's thesis segment (30 ECTS)

MASTER OF SCIENCE IN FOOD TECHNOLOGY		120 ECTS
COURSE		ECTS
FIRST YEAR		60
IN-DEPTH EDUCATION IN FOOD SCIENCE		
• Biochemistry and Physiology of Perishable Crops <sup>2</sup>		4
• Food Chemistry and Analysis <sup>1</sup>		7
• Food Marketing and Consumer Behaviour <sup>1</sup>		4
• Food Microbiology and Analysis <sup>1</sup>		7
• Nutrition and Dietetics <sup>2</sup>		4
IN-DEPTH EDUCATION IN ENGINEERING AND FOOD ENGINEERING		
• Applied Statistics <sup>1</sup>		5
• Engineering Properties and Principles of Food Machinery <sup>2</sup>		7
• Food Processing <sup>1</sup>		7
• Thermal Processing of Foods <sup>2</sup>		8
• Transport Phenomena and Engineering Kinetics <sup>2</sup>		7

COURSE	ECTS
<b>SECOND YEAR</b>	<b>60</b>
<b>MAJOR IN POSTHARVEST AND FOOD PRESERVATION ENGINEERING</b>	
• Design and Management of Storage and Distribution Structures <sup>2</sup>	5
• Low Temperature Processing of Foods <sup>2</sup>	5
• Mathematical Planning and Advanced Statistics <sup>2</sup>	4
• Postharvest courses (choose one of the following):	
- Food Packaging and Transportation <sup>2</sup>	4
- HACCP-Concepts and Quality Assurance: Workshop <sup>2</sup>	4
- Postharvest Pest Management and Disease Control <sup>2</sup>	4
<b>MAJOR IN FOOD SCIENCE AND TECHNOLOGY</b>	
• Food Colloids <sup>1</sup>	5
• Functional Food <sup>1</sup>	5
• Statistical Topics in Food Technology <sup>1</sup>	4
• Product technology courses (choose one of the following):	
- Technology of Fishery Products <sup>1</sup>	4
- Meat and Meat Product Technology <sup>1</sup>	4
- Milk and Dairy Technology <sup>1</sup>	4
- Plant Based Food Products and Ingredients <sup>1</sup>	4
<b>ADDITIONAL ELECTIVE COURSES</b>	
• Cereal Science and Technology <sup>2</sup>	4
• Food Fermentations <sup>1</sup>	4
• Food Regulation: Workshop <sup>2</sup>	4
• Food Safety <sup>1</sup>	5
• Fruit and Vegetable Technology <sup>2</sup>	4
• Workshop Food Technology <sup>1,2</sup>	4
• Management and Marketing in the Agrifood Sector <sup>2</sup>	5
• Advanced Marketing and Agribusiness Management <sup>1</sup>	5
• Management in the Bio-economy <sup>2</sup>	5
• Low Temperature Processing of Foods <sup>2</sup>	5
• Postharvest Pest Management and Disease Control <sup>2</sup>	4
• Milk and Dairy Technology <sup>1</sup>	4
• Plant Based Food Products and Ingredients <sup>1</sup>	4
• Technology of Fishery Products <sup>1</sup>	4
• Design and Management of Storage and Distribution Structures <sup>2</sup>	5
• Food Colloids <sup>1</sup>	5
• Functional Food <sup>1</sup>	5
• Meat and Meat Product Technology <sup>1</sup>	4
<b>FOOD TECHNOLOGY THESIS RESEARCH PROJECT</b>	<b>30</b>

1= at UGent, 2= at KU Leuven

For detailed descriptions of this programme's courses and for the course timetable, please consult [www.kuleuven.be/ma/mftl](http://www.kuleuven.be/ma/mftl)

## Course schedule

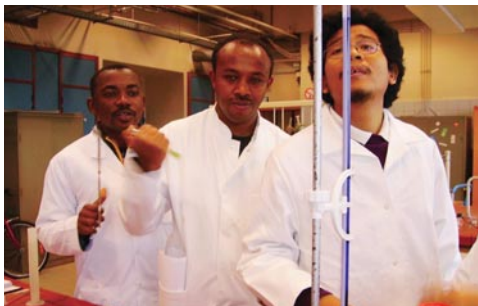
The academic year is divided into two semesters. Each semester consists of 13 weeks of class lectures, followed by a 4-week revision and examination period. The first-semester examination period is in January and the second-semester examination period is in June. Students who do not pass in the first session can retake exams in a third examination period held for that purpose in mid-August to mid-September.

## Studying at two campuses

Students in the first year of the Master's programme will spend the first semester in Gent and the second semester in Leuven. Students in the second year of the Master's programme will live in Gent if they select the major 'Food Science and Technology' or in Leuven if they select the major 'Postharvest and Food Preservation Engineering'.

## Career prospects

IUPFOOD's objective is to offer a programme that takes the specific needs and approaches of developing countries into account. The IUPFOOD programme prepares students for various tasks, particularly in a professional teaching and research environment. IUPFOOD alumni are mainly active in the following sectors: academic institutions (as teaching and/or research staff),



research institutes (as research staff), nongovernmental organisations (in various capacities), governmental institutes (e.g. in research programmes, quality surveillance programmes or national nutritional programmes) and private industry (in particular jobs related to quality control). A number of IUPFOOD alumni advance to PhD studies in an early phase of their career.

## VLIR scholarships

Every year the Flemish Interuniversity Council (VLIR-UOS), with the support of the Belgian Development Cooperation, offers a limited number of scholarships to IUPFOOD participants from developing countries. Detailed information can be found at [www.vliruos.be](http://www.vliruos.be).

## Learn more

[www.kuleuven.be/ma/mftl](http://www.kuleuven.be/ma/mftl)  
[www.iupfood.be](http://www.iupfood.be)

### **General information**

[www.kuleuven.be/english](http://www.kuleuven.be/english)  
[www.kuleuven.be/internationalprogrammes](http://www.kuleuven.be/internationalprogrammes)

### **KU Leuven**

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