

Milk and Dairy Technology (I002764)

Course size *(nominal values; actual values may depend on programme)*

Credits 4.0 **Study time 120 h**

Course offerings and teaching methods in academic year 2024-2025

A (semester 1)	English	Gent	lecture
			practical

Lecturers in academic year 2024-2025

Moens, Kim	LA23	staff member
Dewettinck, Koen	LA23	lecturer-in-charge

Offered in the following programmes in 2024-2025

	crdts	offering
Bachelor of Science in Food Technology	4	A
Master of Science in Bioscience Engineering Technology: Food Industry	4	A
Master of Science in Food Technology	4	A
Exchange Programme in Bioscience Engineering: Agricultural Sciences (master's level)	4	A
Exchange Programme in Bioscience Engineering: Food Science and Nutrition (master's level)	4	A

Teaching languages

English

Keywords

Milk, processing, dairy products, quality

Position of the course

This product oriented course deals with the technology of dairy products. Knowledge of general food technology and engineering is applied onto dairy products. Attention is given to the study of the raw material, modification and processing steps and quality aspects of end products. Practical sessions comprise analytical experiments, experimental work with pilot equipment and sensory analysis of dairy products.

Contents

1. Chemical and physical properties of milk

- 1.1 Carbohydrates
- 1.2 Lipids
- 1.3 Proteins
- 1.4 Minor components

2. Dairy Technology

- 2.1 Primary treatments of milk
- 2.2 Fermented products
- 2.3 Fat rich products
- 2.4 Cheese
- 2.5 Concentrates and powders
- 2.6 Sustainability: biotech and dairy analogues

Initial competences

Milk and dairy technology builds on certain learning outcomes of the course unit food chemistry; or the learning outcomes are acquired in a different way.

Final competences

- 1 Explain the physicochemical properties of milk
- 2 Describe the production of different milk derived products

- 3 Assess the effect of processing on the quality characteristics of dairy products.
- 4 Critically evaluate the production process of dairy products
- 5 Integrate theoretical concepts in the practical sessions
- 6 Analyze (physico)chemical properties of dairy products.
- 7 Analyze and connect experimental data from raw milk characteristics to quality parameters of dairy products
- 8 Critically evaluate the production process of dairy products including sustainability.

Conditions for credit contract

Access to this course unit via a credit contract is determined after successful competences assessment

Conditions for exam contract

This course unit cannot be taken via an exam contract

Teaching methods

Group work, Lecture, Practical

Extra information on the teaching methods

The theory will be given by means of lectures. Slides with comments are available as study material. For the practical exercise the students will perform experiments and analyses in the lab.

Study material

Type: Slides

Name: Lectures

Indicative price: Free or paid by faculty

Optional: no

Language : English

Available on Ufora : Yes

Online Available : Yes

References

BYLUND, G. (2003) Dairy Processing handbook. Tetra Pak Processing systems, Lund, Sweden.

WALSTRA, P; WOUTERS, J.T.M.; GEURTS, T.J. (2006) Dairy science and technology. CRC Press Taylor & Francis, Boca Raton, Florida, USA.

FOX, P. F., UNIACKE-LOWE, T., MCSWEENEY, P. L. H., & O'MAHONY, J. A. (2015). Dairy chemistry and biochemistry, second edition.

MCSWEENEY, P.L.H. & MCNAMARA, J.P. (2022). Encyclopedia of dairy sciences. Academic Press.

Course content-related study coaching

Possibility to consult the lecturers or teaching assistants after the lectures and practical sessions or on appointment.

The practicals are guided by a teaching assistant.

Assessment moments

end-of-term and continuous assessment

Examination methods in case of periodic assessment during the first examination period

Oral assessment

Examination methods in case of periodic assessment during the second examination period

Oral assessment

Examination methods in case of permanent assessment

Participation, Assignment

Possibilities of retake in case of permanent assessment

examination during the second examination period is possible in modified form

Extra information on the examination methods

The periodic evaluation is an oral exam with open questions. The students have time to prepare their answers.

The assignment is a report of the practicals.

Calculation of the examination mark

The periodic evaluation is an oral examination which counts for 75% of the final mark. The

permanent evaluation includes participation during the practical exercises and the report of the practical exercises and counts for 25% of the final mark.

Students who escew periodic and/or permanent evaluations cannot pass the exam. If the final mark is still 10/20 (or higher), the mark is reduced to 9/20.