

Brewing Technology (I700093)

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

Credits	3.0	Study time	90 h	Contact hrs	36.0 h
---------	-----	------------	------	-------------	--------

Course offerings and teaching methods in academic year 2018-2019

A (semester 1)	Dutch	practicum	8.0 h
		lecture	24.0 h
		seminar	4.0 h

Lecturers in academic year 2018-2019

De Clippeleer, Jessika	LA25	lecturer-in-charge
------------------------	------	--------------------

Offered in the following programmes in 2018-2019

	crdts	offering
Master of Science in Biochemical Engineering Technology	3	A
Master of Science in Bioscience Engineering: Food Science and Nutrition	3	A

Teaching languages

Dutch

Keywords

Technology of malting and brewing

Position of the course

To obtain an in depth theoretical and practical knowledge of malting and brewing technology.

Contents

Processes that lead to the production of malt starting from barley (malting) and to the production of beer from malt and other raw materials such as adjuncts, brewing water and hops (brewery).

- Malt production: barley; intake, cleaning, grading and transfer of barley; drying and storage; steeping; germination; kilning; treatment of malt after kilning; special malts.
- Raw materials: hops, adjuncts, brewing water.
- Wort production: malt milling; mashing; lautering; wort boiling; brew house yield; brew house equipment; casting of the wort; removal of the coarse break; cooling and clarifying of the wort.
- Beer production: yeast technology and propagation; fermentation and maturation; production of ales; refermentation in the bottle; beer filtration; beer stabilization.
- Beer container filling: filling of bottles, cans, casks and kegs.

Practical part: beer production in the laboratory on a pilot scale and use of analytical techniques; internationalisation@home by participation at the yearly Brewery Congress.

Initial competences

Basic knowledge of organic and inorganic chemistry, biochemistry, microbiology, and industrial microbiology. Credits obtained for biochemistry. Engineering sciences and/or engineering techniques studied for an equivalent of at least 10 credits.

Final competences

- 1 Have the main technical skills of the brewing process, or of another industrial process, for production and quality control and be able to utilize them in an industrial environment.
- 2 Be able to use the scientific and technical insights of the brewing process, or of another industrial process, as a model for developing and managing various biochemical processes.
- 3 Be able to analyse critically current practical technical problems and to devise

solutions to these problems.

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

Lecture, practicum, seminar

Learning materials and price

Teacher's course and slides, background information, scientific and technical literature.

References

Brewing: Science and practice, Dennis E. Briggs, Chris A. Boulton, Peter A. Brookes and Roger Stevens, Woodhead Publishing, CRC Press, ISBN: 978-0849325472
Freshness, Foam, and Flavor: Practical Guides for Beer Quality, Charles Bamforth
Brewing Yeast and Fermentation, Chris Boulton and David Quain, Blackwell Publishing, ISBN: 978-1405152686
Technology Brewing and Malting, Wolfgang Kunze, VLB Berlin, ISBN: 978-3-921690-77-2

Course content-related study coaching

Possibility to consult the teacher after the lecture/exercises or by appointment.

Evaluation methods

end-of-term evaluation and continuous assessment

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

Written examination with open questions, written examination with multiple choice questions

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

Written examination with open questions, written examination with multiple choice questions

Examination methods in case of permanent evaluation

Participation, job performance assessment, report

Possibilities of retake in case of permanent evaluation

examination during the second examination period is not possible

Extra information on the examination methods

Theory + Tutorial: written examination
Lab exercises: permanent evaluation and report evaluation

Calculation of the examination mark

Theory + Tutorial: 80%
Lab exercises: 20%

A weighted average is used to compute the final score for a training item. However, if a student gains a score of 8 or less on 20 on one of the different courses (parts of training items), he proves that his skill for certain sub-competences is insufficient.

Consequently, one can turn from the arithmetical calculation of the final assignment of quotas of a training item and the new marks are 9/20.