Food Processing (I000061)

Course Specifications
Valid in the academic year 2016-2017

Course offerings and teaching methods in academic year 2016-2017
A (semester 1)  English  group work  2.5 h
                practicum  2.5 h
                seminar: coached  27.5 h
                self-reliant study  6.25 h
                lecture  32.5 h
                guided self-study  18.75 h

Lecturers in academic year 2016-2017
Dewettinck, Koen  LA07  lecturer-in-charge
Ragaert, Peter  LA07  co-lecturer

Offered in the following programmes in 2016-2017
Master of Science in Food Technology  7  A
Exchange Programme in Bioscience Engineering: Food Science and Nutrition (master's level)  7  A

Teaching languages
English

Keywords
Food, technology, unit operations, processing, quality, safety, shelf life, sensorial properties, nutritional value, packaging

Position of the course
The most important unit operations applied in the food industry are discussed. In particular attention is paid to the influence of applied unit operations on food quality in a wide sense.

Contents

Part 1: Unit processes
1. Heat transfer
2. Destruction of microorganisms
3. Heat treatments
4. Moist air conditions
5. Low temperature preservation
6. Freezing
7. Evaporation
8. Drying
9. Baking, roasting, frying and extrusion
10. High-pressure processing
11. Minimal processing methods
12. Irradiation, microwave heating

Part 2: Food packaging
1. Introduction: Function of packaging
2. Packaging materials
3. Packaging systems
4. Modified atmosphere packaging
5. Safety of packaging materials

(Approved)
Initial competences

Basic knowledge in food chemistry

Final competences

1. Understand unit operations and their combinations applied in food industry
2. Gain insight in unit operations and their combinations applied in food industry
3. Be aware of the impact of these unit operations on the quality of food products in a wide sense
4. Perform calculations on unit operations
5. Collect information about unit processes applied in food industry
6. Analyze information about unit processes applied in food industry
7. Critically apply gathered information on a selected case study
8. Integrate the gathered information on a selected case study in a written format
9. Critically evaluate the task of a peer by feedback and feedforward on the
10. Understand the different functions and compositions of packaging materials for food products
11. Gain insight in the interaction between food properties, packaging materials and filling systems

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

Guided self-study, group work, lecture, practicum, self-reliant study activities, seminar: coached exercises

Extra information on the teaching methods

The theory is given by means of lectures. Slides are available as study material. During the exercises students have time to solve the problems individually or in group. Afterwards the solution is given for the whole group by the teacher or by a student. Students have to write a report of the practical session spray drying. Students have to make an integrated task covering unit processes necessary to produce a food product. During the semester, the progress is evaluated by teaching assistants and feedback and feed forward is given by peers.

Learning materials and price

The course slides are available on Minerva.

Optional handbook available (hard or soft copy)

References

Food Processing


Food Packaging

- Air Products. A fresh approach to modified atmosphere packaging (MAP).
- Packaging Europe, 2007. Volume 2.2, 2.3 and 2.5.

Course content-related study coaching

(Approved)
Possibility to consult a teacher or his collaborators after the theoretical lectures or
exercises, on appointment.
The (practical) exercises are guided by a teaching assistant.

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, open book examination
Examination methods in case of periodic evaluation during the second examination period
Written examination with open questions, open book examination
Examination methods in case of permanent evaluation
Participation, assignment, peer assessment
Possibilities of retake in case of permanent evaluation
examination during the second examination period is possible in modified form
Extra information on the examination methods
PE1 and PE2: The theory is assessed by a written examination (closed book). The
exercises and calculations are assessed by an open book examination for which only
printed course notes can be used.
NPE: the task is evaluated by the teachers and by peer evaluation. Participation during
exercises and practical sessions is evaluated by presence and commitment.
Calculation of the examination mark
Theory (45%) - Exercises (35%) - Task (20%)
Students who eschew periodic and/or permanent evaluations for this course may be
failed by the examiner.

(Approved)