

Course syllabus

Livsmedelsteknik II - Processteknik Food Technology - Food Preparation Processes

YTHF10, 7,5 credits, G2 (First Cycle)

Valid for: 2023/24

Faculty: Faculty of Engineering, LTH

Decided by: PLED LIV

Date of Decision: 2023-04-17

General Information

Main field: Food Science. **Depth of study relative to the degree requirements:**

First cycle, has at least 60 credits in first-cycle course/s as entry requirements.

Language of instruction: The course will be given in Swedish

Aim

To give elementary knowledge on important unit operations and technologies used for transforming raw materials into prepared food. Also knowledge of process lines for food manufacturing in industry and catering.

Learning outcomes

Knowledge and understanding

For a passing grade the student must

- know the concept of unit operations
- be able to describe and explain different systems for the production of ready-made food/meals and how the food's nutritional content, microbiological safety and sensory properties are affected by the production
- be able to describe different methods and equipment to extending the shelf life of food and how these affect the food's nutritional content, microbiological safety and sensory properties
- be able to explain what affects energy consumption in various food-related processes
- be able to explain what affects the flow of fluid in a pipe system

Competences and skills

For a passing grade the student must

- Be able to design a flow chart.
- Be able to perform energy auditing and temperature during food manufacturing.

Contents

Different production lines will be studied to see how the raw materials are transformed into prepared foods. The lines studied are continuous as well as batch-wise, open or closed. Each line consists of a number of unit operations such as separation, disintegration, mixing, drying and pasteurisation. This course will focus on freezing, drying, pasteurisation and sterilisation. Another focus is on lines for ready prepared foods and concepts such as sous vide, cook chill, vacuum and controlled atmosphere storage are targeted but also means of extending the shelf life of prepared meals through cooling, freezing, thermal processing, storage in controlled atmosphere or vacuum.

One part of the course will explain what affects the flow of fluid in a pipe system.

It contains a laboratory work where storage using controlled atmosphere is compared in relation to product quality.

Examination details

Grading scale: UG - (U,G) - (Fail, Pass)

Assessment: Written examination, laboratory work, project assignments and individual home assignment as well as guest lectures and field studies.

The examiner, in consultation with Disability Support Services, may deviate from the regular form of examination in order to provide a permanently disabled student with a form of examination equivalent to that of a student without a disability.

Parts

Code: 0120. **Name:** Written Examination.

Credits: 1,5. **Grading scale:** UG. **Assessment:** Written exam.

Code: 0220. **Name:** Assignment: Food Preservation.

Credits: 1,5. **Grading scale:** UG. **Assessment:** Individual report, peer review and group report.

Code: 0320. **Name:** Assignment: Flow Chart.

Credits: 1. **Grading scale:** UG. **Assessment:** Individual assignment.

Code: 0420. **Name:** Fluid Mechanics, Written Report + Oral Examination.

Credits: 1,5. **Grading scale:** UG. **Assessment:** Laboratory experiment, written report and oral examination.

Code: 0520. **Name:** Study Visits.

Credits: 1. **Grading scale:** UG. **Assessment:** Study visits and laboratory experiments.

Code: 0620. **Name:** Seminar: Energy.

Credits: 1. **Grading scale:** UG. **Assessment:** Active participation in laboratory work, seminar assignment and oral presentation.

Admission

Assumed prior knowledge: YTHA30 Food Technology I - Heat and Heat Transfer, YTHA66 Basic Nutrition, YTHF35 Food Microbiological Quality, YTHA73 Food Microbiological Bases

The number of participants is limited to: No

The course overlaps following course/s: YTH202, YTHA35

Reading list

- Jonsson Marklinder Nydahl Nylander: Livsmedelsvetenskap. Studentlitteratur, 2007, ISBN: 978-91-44-04346-3.
- Ekholm Fraenkel Hörbeck : Formler & tabeller i fysik, matematik och kemi för gymnasieskolan. Konvergenta HB , 2010, ISBN: 978-91-97-37086-8.
- Andreas Håkansson: Livsmedelstekniska perspektiv. 2015.

Contact and other information

Course coordinator: Ia Rosenlind, ia.rosenlind@food.lth.se

Course homepage: <https://www.ple.lth.se/en/>

Further information: Study visits and guest lectures are compulsory. In case of legal impediment the student has to accomplish an individual assignment with an equivalent content.