



LTH

FACULTY OF
ENGINEERING

Course syllabus

Hållbar livsmedelsproduktion och förpackning Sustainable Food Processing and Packaging

KLGN65, 7,5 credits, A (Second Cycle)

Valid for: 2023/24

Faculty: Faculty of Engineering, LTH

Decided by: PLED B/K

Date of Decision: 2023-04-18

General Information

Main field: Food Systems.

Compulsory for: MLSA1

Elective for: MLIV1, KLMT3

Language of instruction: The course will be given in English

Aim

The course aims to:

- Provide an understanding of the interdisciplinary connections and tools of sustainable food processing and packaging to enable smart-systems, including their need in society and the environmental, as well as the economic and social impact.
- To introduce concepts of food and packaging design and production through efficient use of materials and energy.
- To give an increased understanding of food processing with significant waste reduction along the food value chain as well as healthy and high quality food production.
- To raise awareness of future trends in sustainable food processing and packaging.

Learning outcomes

Knowledge and understanding

For a passing grade the student must

- have an understanding of sustainable systems of production, processing and consumption of food
- identifying options and challenges related to the development of sustainable and innovative food products, processes and systems
- be able to evaluate current and future food products and food packaging from a sustainability perspective
- know how the properties of different materials or formulations can be used to develop sustainable healthy foods
- be able to describe how different methods of food processing affect food products, side streams and waste
- be able to describe the functions of packaging in food supply chains
- be able to describe the role of food packaging for sustainable development both with regard to the choice of packaging material and the design of the packaging system

Competences and skills

For a passing grade the student must

- have the ability to critically identify and manage issues relating sustainable food processing
- have the ability to orally and written discuss and report how different raw materials or ingredients can be used to develop sustainable and healthy foods
- have the ability to independently and in group plan, report and discuss the findings and conclusions of practical assignments on the topic of sustainable food processing
- demonstrate the ability to evaluate different combinations of food processing and food packaging systems from a sustainability perspective

Judgement and approach

For a passing grade the student must

- be able to independently seek and evaluate information in scientific articles
- show ability for collaboration in different groups
- demonstrate ability to define and discuss ethical aspects of sustainable food processing and packaging

Contents

The course content include:

- Introduction to sustainable food processing, global food systems, environment and food security.

- Introduction to sustainable food processing and consumption followed by product formulation of sustainable and healthy foods
- Introduction to resource saving food processing, includes energy, water and land uses followed by a review in emerging technologies for sustainable food processing.
- Introduction to climate change related to food processing and food waste management.
- Introduction to the development of packaging for sustainable food supply chains

The course will have guest lecture/s from industry partners on sustainable food processing and packaging. The teaching consists of case studies, group work, design innovative foods and packages taking into consideration sustainability aspects. Discussion sessions at the beginning, midway and final stages of the case study. Seminars for presenting the case studies

Examination details

Grading scale: TH - (U,3,4,5) - (Fail, Three, Four, Five)

Assessment: The examination is aimed to evaluate the fulfilment of the course learning objectives. The examination consists of two parts: A written exam and the presentation of the case studies (written and oral presentation). Written exam 30 p (approved >14) Case studies 30 p (approved >14) Max 60 points. To pass the course the student needs to have the two examination parts approved. The Written exam has two parts, sustainable food processing (20p, approved >9) and sustainable food packaging (10p, approved >5). To pass the exam, the student needs to get approval grades on both sections. The grades will be 3 (>28 p in the examination), 4 (>39 p in the examination) and 5 (>49 p in the examination) or not passed.

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.

Admission

Assumed prior knowledge: Calculus, Basic food science or technology

The number of participants is limited to: No

Reading list

- Holden, Nick; Tiwari, Brijesh K; Norton, Tomas . 2014. • Holden, Nick; Tiwari, Brijesh K; Norton, Tomas : Sustainable Food Processing. John Wiley & Sons Incorporated, 2014, ISBN: 978047067223-5.
- Galanakis, Charis M: Sustainable Food Systems From Agriculture to Industry, Improving Production and Processing. Academic press, 2018, ISBN: 9780128119358.
- Hellström, D.; Olsson, A.: Managing Packaging Design for Sustainable Development, A Compass for Strategic Directions. John Wiley & Sons Incorporated, 2017, ISBN: 9781119150930.

Contact and other information

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