



Course syllabus

Innovationsteknik Innovation Engineering

INTN01, 7,5 credits, A (Second Cycle)

Valid for: 2023/24

Faculty: Faculty of Engineering, LTH

Decided by: PLED I

Date of Decision: 2023-04-14

General Information

Elective for: C4, D4, E4, F4, I4-ai, M4, N4, MMSR2

Language of instruction: The course will be given in English

Aim

The purpose of the course is to give participants a deepened understanding of how innovations of both technical and social character are created. The course deals with design and development of both new products (goods and services) and new processes (technological and organizational), with a particular focus on methods, tools and strategies for the early phases of the innovation process. The course is based on a generic design thinking process, and includes lectures and exercises related to theories on design processes and methods within the topic of design and innovation. Through needs-motivated projects guided by coaches, course participants will spend the major part of the course creating conceptual solution proposals and evaluating these with respect to three overlapping criteria; desirability, feasibility and viability. The aim of the course is to get a broader perspective on the challenges related to UN sustainable development goals.

Learning outcomes

Knowledge and understanding

For a passing grade the student must

- Describe and discuss key dimensions and characteristics of a generic design thinking process.
- Identify and discuss appropriate methods and approaches in each dimension of the process.

- Report and discuss how the chosen methods and approaches relate to the industrial state-of-practice and the academic state-of-the-art.

Competences and skills

For a passing grade the student must

- Plan and perform a team-based project.
- Explore and analyze needs, trends and technologies.
- Create and evaluate ideas for how to address the identified needs.
- Demonstrate and evaluate conceptual solution proposals.

Judgement and approach

For a passing grade the student must

- Evaluate and assess the project outcomes, with respect to the success criteria (desirability, feasibility, viability).
- Evaluate and assess the project outcomes, with respect to sustainable development (ecological, social and economic factors).
- Discuss and critically assess his/her own – and the other participants' – approaches, insights and conclusions.
- Appraise and discuss aspects related to team dynamics.

Contents

The major part of the course is devoted to project work, which allows participants to work in teams to experience a systematic design and innovation process. Class sessions will include a mix of lectures and practical exercises related to methods, tools and strategies for design and innovation. Guest lecturers will provide insight into real industry cases, and teams are provided with coaches that are active researchers within the field of design and innovation. Peer review and feedforward techniques are used throughout the course to ensure critical reflection on both processes and outcomes. The course is a project course based on the challenges related to UN sustainable development goals.

Examination details

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

Assessment: The examination consists of two parts: 1) Project that will be performed in teams of 3-4 students, and reported in a written report and a verbal team presentation. 2) Individual written report that discusses insights and conclusions from the project and lectures, based on the course literature. Please note that the first and second lecture, coaching sessions and final presentations are mandatory.

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

Admission requirements:

- MIO012 Managerial Economics, Basic Course or MIO022 Management Organization or MIOA01 Managerial Economics, Basic Course or MIOA12 Managerial Economics, Basic Course or MIOA15 Managerial Economics, Basic Course or MIOF20 Management Organization

The number of participants is limited to: 60

Selection: Completed university credits within the programme. Priority is given to students enrolled on programmes that include the course in their curriculum.

Reading list

- Brown, T., Katz, B.: Change by Design, How Design Thinking Transforms Organizations and Inspires Innovation. Harper Collins, 2009, ISBN: 0061766089. Purchasing the above book is recommended, but not mandatory. Complementary material will be handed out in class.

Contact and other information

Course coordinator: Anders Warell, anders.warell@design.lth.se

Course homepage: <https://www.innovation.lth.se/education/>