Disruptive Technologies

Programme course

6 credits

Disruptive Technologies

TMKA09

Valid from: 2021 Spring semester

Determined by
Board of Studies for Mechanical Engineering and Design

Date determined
2020-09-29

Main field of study
Design

Course level
Second cycle

Advancement level
A1X

Course offered for
- Master's Programme in Design

Prerequisites
Bachelor’s degree, or equivalent level, within design, sustainability, management or a similar area.

Intended learning outcomes
On a re-design and engineering level only limited improvement of sustainability performance is possible. More substantial improvement may require totally new technological solutions, with accompanying societal and market transitions. Think of non-conventional energy in mobility, smart-grids, and bio-based economy.
After the completed course the student shall be able to
- articulate the role of systems and actors in technology-related transitions
- describe and explain how and why disruptive technologies emerge and how they impact (and are impacted by) incumbent organizations as well as entrepreneurial start-ups.
- use mapping techniques to perform a system-level analysis of technology trends and their potential influence on design activities with a special emphasis on sustainability.

Course content
Students will analyze historical disruptive technologies and societal/market transitions, and do a case study with the aim of mapping a desired future sustainable transition, with its accompanying future tech.

Teaching and working methods
The course will be based on lectures and seminars. Students will explore case studies on disruptive technologies, and write their own case on a specific disruptive technology.

Examination

UPG3	Written case report	3 credits	U, 3, 4, 5
UPG2	Technology exploration	1.5 credits	U, G
UPG1	Reflection on literature	1.5 credits	U, G

Grades

Four-grade scale, LiU, U, 3, 4, 5

Department

Institutionen för ekonomisk och industriell utveckling

Director of Studies or equivalent

Mats Nåbo

Examiner

Marie Bengtsson

Education components

Preliminary scheduled hours: 0 h
Recommended self-study hours: 160 h

Course literature

Books

The Innovator's Dilemma: The Revolutionary Book That Will Change the Way You Do Business by Clayton M. Christensen. Supplemented with research articles.