HALMSTAD UNIVERSITY
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School of Information Technology

Design of Circular AI-Based Services 3 credits

Design av cirkulära AI-baserade tjänster 3 hp

Second cycle
Main field: Informatics, Second cycle, has second-cycle course/s as entry requirements (A1F)
Syllabus is adopted by the Research and Education Board (2023-02-06) and is valid for students admitted for the spring semester 2023.

Placement in the Academic System

The course is given as a single subject course.

Prerequisites and Conditions of Admission

The course Introduction to Human-centered Design for AI 5 credits at second level.

Course Objectives

The aim of the course is for the student to understand what circular economy is and how it can be a key for business strategy to address environmental goals. The student will get an understanding of how circular business models can be achieved by using design of digital services, digital transformation, and artificial intelligence (AI) as enablers.

Following successful completion of the course the student should be able to:

Knowledge and understanding

- describe basic approaches for circular and sustainable business practice from a digital service perspective
- understand enablers and opportunities such as Machine Learning, data analysis, and other AI technologies in relation to digital strategy for circular business models

Skills and ability

- formulate requirements for, and select, appropriate tools and metrics for specific circularity and sustainability objectives
- systematically analyze and prioritize the steps needed to initiate a circular transformation from a digitalization and data perspective

Judgement and approach

- critically analyze and evaluate tools, methods, and metrics for achieving science-based sustainability impact and avoiding undesired practices, such as greenwashing

Primary Contents

The course looks at the role digital technology and AI can play in circular business transformation. It explores what circular economy is, why it is a key for business survival and meeting climate challenges, and how circular business models can be enabled using data-driven services. The central concepts of the course (e.g., circularity, sustainability, business and societal impact of data-driven services, and human-centered data science) are explored both from a theoretical and a practical perspective on designing for people, planet, and prosperity.

Teaching Formats

The teaching consists of lectures and case studies, as well as exercises with supervision.

Examination

The overall grades of Fail or Pass will be awarded for the course.

Name of the test		Grading
Written Assignment	3 credits	U/G

If there are special reasons, the examiner may make exceptions from the specified examination format and allow a student to be examined in another way. Special reasons can e.g. be a decision on learning support.

For elite sports students according to Riktlinjer för kombinationen studier och elitidrott vid Högskolan i Halmstad, DNR: L 2018/177, the examiner has the right to decide on an adapted examination component or let the student complete the examination in an alternative way.

Course Evaluation

Course evaluation is part of the course. This evaluation should offer guidance in the future development and planning of the course. Course evaluations should be documented and made available to the students.

Course Literature and Other Study Resources

Stoknes, Per Espen. *Tomorrow's Economy: A Guide to Creating Healthy Green Growth*. MIT Press, 2021

Additional scientific articles and whitepapers (reports) available at the University Library's databases are determined together with students and the appointed course manager.