University of
Applied Sciences

ICE1ILV - Introduction to Circular Economy

**ECTS: 6 | Contact hours per week: 3 |
Semester: 1 | WS24/25**

Lecturer(s) / Lehrende(r)

Dr. Karl Michael HÖFERL

Learning outcomes

At the end of this module students are able to:

· explain the principles of the circular economy, with a focus on recycling, polution prevention and resource recovery, and recognize resource conservation as a fundamental element for business model innovation,
· analyse the role of business organisations, consumers, and regulators in the complete lifecycle of a product and strategies for integrating circular principles into global supply chain networks and critically evaluate solutions for sustainable procurement and logistics, operations and marketing in the context of circular value chain management,
· elaborate on circularity strategies that consider both short-term gains and long-term environmental and social benefits.

Course description

· History, frameworks, policy and principles of circular economy
· Ressource efficiency in circular value chains: linear vs. cirucular production

· Integration of business into natural systems and ressources and their conservation: water, land, forest, mining
· Polution Prevention
· Principles of Service, Repair and Recycling
· Co-creation and collaboration of businesses, communities and consumers in a circular model
· Tools, indices and feasibility analysis on business and macro level to assess circular economy

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Teaching concept

To achieve the learning outcomes, students will engage in a variety of teaching methods:

Lectures and Discussions: Traditional lectures will be conducted to impart foundational knowledge on circular economy principles, with a focus on recycling, polution prevention, and resource recovery and the role of business organisations, consumers, and regulators in the complete lifecycle of a product. Interactive discussions will follow each lecture, providing students with the opportunity to engage in dialogue, share insights, and ask questions, fostering a deeper understanding of the theoretical concepts presented.

Case Studies: Real-world case studies will be distributed to students, requiring them to analyse and critically assess how circular economy principles are applied in various industries. This activity will encourage practical application of theoretical knowledge and enhance problem- solving skills.

Exercises: Practical exercises will be incorporated into the module to reinforce theoretical concepts. These may include group activities where students collaboratively develop circularity strategies, considering both short-term gains and long-term environmental and social benefits. Simulations or hands-on projects will challenge students to apply their understanding to real- world scenarios, allowing them to devise and implement circular economy strategies in a controlled learning environment.

Planned timetable:

Date	Duration	Topics

09.11.2024	6	# Overview, rulez of the game; # Associations & expectations; # Where we are now; # Core defenitions & R frameworks; # Examples from different fields; # Relationship CE & sustainability;
16.11.2024	3	# Historical development
23.11.2024	3	# Historical development
29.11.2024	5	# R Frameworks # 3 x CE
06.12.2024	2	# Circular business models # Measuring circularity
07.12.2024	3	# Circular business models # Extended Producer Responsibility
13.12.2024	5	Simulation game
20.12.2024	4	# (Inter-)national regulations # CE governance # Circular systems & cities
11.01.2025	3	# Circular systems & cities
18.01.2025	6	# Circular society # Topic of choice
01.02.2025	2	Written examination

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1. attempt

Submission (Deliverable) (Intermediate exam)
written / - / 40,00%
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Written Exam biz:Examiner (Intermediate exam)
written / 90 min / 60,00%
ICE1: 01.02.2025 09:00 - 11:15 (U.0.07)

2. attempt

Written Exam biz:Examiner (Prüfung)
oral / 90 min / 100,00%
ICE1: 17.03.2025 13:00 - 16:15 (Intern)

Self Study Time / Selbststudienzeit*

118,5 hours per semester / Stunden pro Semester
* The "workload" of a course comprises course attendance as well as all work necessary to complete the course (course preparation), individual study, group work, research, assignments, exam preparation etc. (= Self-study time). The workload is expressed in ECTS (1 ECTS = 25 hours).
* Die "workload" für die positive Absolvierung einer Lehrveranstaltung umfasst die Präsenzzeiten sowie jene Zeiten, die für individuelle Vorbereitung, Gruppenarbeiten, Recherche, Verfassen von Arbeiten, Prüfungsvorbereitung etc. notwendig sind (= Selbststudienzeit). Die "workload" wird in ECTS ausgedrückt (1 ECTS = 25 Stunden).

Readings & media

Recommended materials:

Den Hollander, M., Idema, M., & Joore, P. (2024). *Circular Design Research in the Netherlands*. TU Delft OPEN Publishing. https://doi.org/10.59490/mg.97

Ellen MacArthur Foundation. (2024). *The Circular Economy Show Podcast*. https://www.ellenmacarthurfoundation.org/circular-economy-podcast/overview

Henzen, R., & Steeman, M. (2021). *Mastering the circular economy: A practical approach to the circular business model transformation*. KoganPage.

Raworth, K. (2017). *Doughnut Economics—Seven Ways to Think Like a 21st-Century Economist*. Chelsea Green Publishing.

Stahel, W. R. (2016). The circular economy. *Nature*, *531*(7595), 435–438. https://doi.org/10.1038/531435a

Braungart, M., & McDonough, W. (2009). *Cradle to cradle remaking the way we make things*. Random House.