

SYLLABUS

course description

Course title	Life Cycle Assessments <i>Materials and Design for a Circular Economy</i> Area: Seminar 1
Course code	96024
Scientific sector	-
Degree	Master in Eco-Social Design (LM-12)
Semester	I
Year	1st and 2nd
Credits	2
Modular	No
Lecturer	Aart van Bezooijen office F3.04, e-mail@unibz.it, tel. +39 0461 015226/-27 Webpage http://www.unibz.it/en/design-art/people/StaffDetails.html?personid=
Scientific sector of the lecturer	-
Teaching language	English
Office hours	-
Teaching language	English
Total lecturing hours	18
Total hours of self-study and/or other individual educational activities	32
Attendance	mandatory
Prerequisites	-
Course page	-

Course description

In this workshop, we will focus on the role and importance of materials and design in the context of a circular economy. The course will provide information through inspiring lectures followed by practical exercises to apply the discussed materials and methods. We will discuss the importance of life-cycle-assessment, what it can (and cannot) do, and assess and compare the environmental impact of existing products ourselves. In short, a “learning by doing” approach involving short information sessions, group work and presentations to share knowledge, support critical thinking and discuss positions.

Educational objectives

Students will be able to:

- ✓ Know which tools and methods are available for circular design.
- ✓ Are able to analyze and calculate the environmental impact of products through eco-indicators (e.g. Ecolizer Design Tool).
- ✓ Insight in the environmental implications of materials and processing selection
- ✓ Are able to define which parts of the lifecycle (production, consumption and disposal) are crucial for product optimization.
- ✓ Learn to see and assess products in the context of their lifecycles

Knowledge will be acquired in the following fields:

- ✓ Circular design tools and methods
- ✓ Lifecycle Assessment (LCA)
- ✓ Cradle to Cradle methodology
- ✓ Eco-design principles
- ✓ Materials Driven Design

List of topics covered

- Circular design tools and methods
- Lifecycle Assessment (LCA) focusing on the phases of Processing, Packaging, Transport, Usage and Recycling
- Cradle to Cradle methodology
- Eco-design principles
- Materials Driven Design

Teaching format

Frontal lectures combined with hands-on exercises and group presentations.

Learning outcomes*Knowledge and understanding:*

Fields of circular design and material driven design

Applying knowledge and understanding:

Use of Lifecycle Assessment tools and methods

Making judgments:

Ability to estimate environmental impact of products

Communication skills:

Share findings through group presentations (visual and spoken)

Learning skills:

Offering references of online resources and tools for further research

Assessment

Assessment the environmental impact of an existing product with a given LCA-method.

Providing one or more possibilities to improve the analyzed product.

Assessment language: English

Evaluation criteria and criteria for awarding marks:

Calculation with the LCA-method.

Suggested improvement proposals (production, use and disposal).

Required readings

No required readings.

Supplementary readings

- The Story of Stuff – Annie Leonard
- Cradle to Cradle. Remaking the Way We Make Things – Braungart and McDonough
- Werkzeuge für die Designrevolution – IDR – Institute of Design Research Vienna
- The World we Made – Jonathon Porritt