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BJ02A1500_04.03.2019

Current issues in Enabling Technologies for Circular Economy (5 ECTS)

Time and space

04.03.2019- 30.04.2019
LUT Moodle: BJ02A1500_04.03.2019 Current issues in Enabling Technologies for Circular Economy
To sign in LUT Moodle go to: https://moodle.lut.fi/login/lutlogin.html

Responsible teachers

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The intended learning outcomes

By the end of the course, the students are expected to be able to:

1. Understand basic concepts of circular economy (raw materials, processing, manufacturing until end-of-life recycling and reuse) and the drivers for change from linear to circular economy.
2. Understand and evaluate the processing technologies of materials in context of circular economy.
3. Recognize and compare impacts (environmental, economic and social) of processing technologies when assessing the current (linear) practice of material processing vs circular value chains.
4. Apply the transferable skills of life cycle thinking (ecodesign) to evaluate processing technologies in circular value chains.

Contents

The course will introduce the most important processing technologies that enable the implementation of circular economy, such as recycling and recovery as well as separation and purification technologies. The approach of the course is mainly solution based and thus aims to show practical examples on the utilization of different technologies in solving different kind of challenges in circular economy. A special emphasis is laid on topical themes, such as recycling and upgrading of plastic, electric, packaging and textile waste as well as on the production of biofuels. The course will also introduce the concept of ecodesign as a tool to manage the complex value chains in circular economy.

Teaching methods

The course is executed fully on e-learning in a digital learning environment (Moodle).

Teaching language

The course will be held in English.

Assessment scale and methods

The students will prepare a team portfolio on one specific subject during this course that will be assessed. In the preparation and assessment of the portfolios peer and self-evaluation will be utilized. In addition, students will answer individually to 2 compulsory questions (in the beginning and in the end of the course). The assessment scale will be passed/failed.

Course material

The course material and the guidance to supplementary material is provided in connection with the different topics.