# Course: Circular design

credits: 5

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| **Course code** | WBVB25CDE-EN |
| **Name** | Circular design |
| **Study year** | 2026-2027 |
| **ECTS credits** | 5 |
| **Language** | English |
| **Coordinator** | H.J. Grijpstra |
| **Modes of delivery** | Education |
| **Assessments** | Circular design - Assignment |

**Learning outcomes**

The student:

- conducts an analysis of the user and the use scenario to develop a set of requirements
- applies system approach for analyzing the main function of a product
- understands the LCA (life cycle analysis) during product design
- describes the functions of the components in the installation based on system analysis
- applies principles of circular design in product design, material selection and end of life management while ensuring a realistic business case
- determines the maintenance needs by selecting from different maintenance models
- designs measures to reduce the risks of failure based on a self-conducted FMECA linked to a risk matrix
- sets up a maintenance plan for a specific asset, focusing on costs (TCO), efficiency, and quality, (based on a maintenance vision and strategy)
- acquires knowledge of materials, their composition, application areas, and recyclability, and applies this knowledge to the design process.

**Content**

In this module, you will learn how to systematically approach design throughout the entire product lifecycle and understand why this is a valuable addition to the quick, inventive approach. Through principles of circular design, you will learn to approach the design of a product to ensure the materials are used in a circular manner, not a linear (make-use-waste) method.
After the design and production phases, you will gain deeper insights into maintenance and management and material choice. By systematically addressing circular design and maintenance throughout the product lifecycle, students will be equipped with the skills necessary to create efficient, sustainable, and high-quality products.

**Included in programme(s)**

Mechanical Engineering VWO a 3-year variant

**School(s)**

Engineering, Life Sciences & ICT

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