

TRAINING LESSON 10 - Part 1

Title	<ul style="list-style-type: none"> ○ Eco-design
Part of the training course referred to in this lesson	<ul style="list-style-type: none"> ○ X Part 1 General information about sustainability and CE Part 2 Specific Information about: <ul style="list-style-type: none"> <input type="checkbox"/> Wood sector <input type="checkbox"/> Plastic sector <input type="checkbox"/> Agrifood sector
EQF level	Level 3
Where the lesson was tested	//
General Learning objective(s) according to the Bloom Taxonomy https://cft.vanderbilt.edu/guides-sub-pages/blooms-taxonomy/	<ul style="list-style-type: none"> <input type="checkbox"/> Create Produce new or original work (design, assemble, construct, investigate, formulate) <input type="checkbox"/> Evaluate Justify a stand or decision (appraise, argue, defend, critique, select, support) X Analyze Draw connections among ideas (differentiate, organize, relate, compare, distinguish, test, experiment) X Apply Use information in new situations (execute, implement, solve, use, demonstrate, operate) X Understand Explain ideas or concepts (classify, discuss, describe, identify, locate, translate) X Remember Recall facts and basic concepts (define, duplicate, list, memorize, repeat)
Specific learning objective(s)	<ul style="list-style-type: none"> ● <i>To learn more about Eco-design</i> ● <i>To analyse features and examples of Eco-design</i>
Cognitive, socioemotional and behavioural outcomes based on https://www.unesco.d	<p>SDG 12 Responsible Consumption and Production Ensure sustainable consumption and production patterns</p> <p><u>Cognitive learning objectives:</u> The learner understands how individual lifestyle choices influence social, economic and environmental development.</p>

<p>e/sites/default/files/2018-08/unesco_education_for_sustainable_development_goals.pdf</p>	<p>The learner knows about strategies and practices of sustainable production and consumption.</p> <p>The learner understands dilemmas/trade-offs related to and system changes necessary for achieving sustainable consumption and production.</p> <p><u>Socio-emotional learning objectives:</u></p> <p>The learner is able to communicate the need for sustainable practices in production and consumption.</p> <p>The learner is able to differentiate between needs and wants and to reflect on their own individual consumer behaviour in light of the needs of the natural world, other people, cultures and countries, and future generations.</p> <p>The learner is able to feel responsible for the environmental and social impacts of their own individual behaviour as a producer or consumer.</p> <p><u>Behavioural learning objectives:</u></p> <p>The learner is able to promote sustainable production patterns. The learner is able to challenge cultural and societal orientations in consumption and production.</p>																
<p>Green skill(s) addressed</p>	<table border="0"> <tr> <td><input type="checkbox"/> Creative problem-solving</td> <td><input type="checkbox"/> Management skills</td> </tr> <tr> <td>X Forward-thinking</td> <td><input type="checkbox"/> Impact quantification</td> </tr> <tr> <td><input type="checkbox"/> Monitoring skills</td> <td><input type="checkbox"/> Life-cycle management</td> </tr> <tr> <td>X Analytical skills</td> <td><input type="checkbox"/> Science skills</td> </tr> <tr> <td>X Lean production</td> <td><input type="checkbox"/> Waste management</td> </tr> <tr> <td>X Maintenance and repair skills</td> <td><input type="checkbox"/> Environmental auditing</td> </tr> <tr> <td>X Pollution prevention</td> <td><input type="checkbox"/> Ecosystem management</td> </tr> <tr> <td>X Eco-design</td> <td><input type="checkbox"/> Other _____</td> </tr> </table>	<input type="checkbox"/> Creative problem-solving	<input type="checkbox"/> Management skills	X Forward-thinking	<input type="checkbox"/> Impact quantification	<input type="checkbox"/> Monitoring skills	<input type="checkbox"/> Life-cycle management	X Analytical skills	<input type="checkbox"/> Science skills	X Lean production	<input type="checkbox"/> Waste management	X Maintenance and repair skills	<input type="checkbox"/> Environmental auditing	X Pollution prevention	<input type="checkbox"/> Ecosystem management	X Eco-design	<input type="checkbox"/> Other _____
<input type="checkbox"/> Creative problem-solving	<input type="checkbox"/> Management skills																
X Forward-thinking	<input type="checkbox"/> Impact quantification																
<input type="checkbox"/> Monitoring skills	<input type="checkbox"/> Life-cycle management																
X Analytical skills	<input type="checkbox"/> Science skills																
X Lean production	<input type="checkbox"/> Waste management																
X Maintenance and repair skills	<input type="checkbox"/> Environmental auditing																
X Pollution prevention	<input type="checkbox"/> Ecosystem management																
X Eco-design	<input type="checkbox"/> Other _____																
<p>Duration</p>	<p>15 min.</p>																
<p>Structure and content of the lesson</p>	<p>Lesson “Eco-design” consist of three topics:</p> <p>Topic 1: Eco-design perception</p> <p>Topic 2: Eco-design directive</p> <p>Topic 3. Features and examples of eco-design</p> <p>For an introduction to the lesson, we suggest watching an introduction video about eco-design https://www.youtube.com/watch?v=7gTdyh8ejQw</p> <p>There are several different definitions that present eco-design aspects.</p>																

Summarised and simplified definition responds to main eco-design principles
- Eco-design is a way to minimize the negative impact on the environment using principles of sustainability and responsible (circular) design.

The main idea is how to minimize product design in a more friendly way.

Topic 1: Eco-design perception

The circular design and eco-design focus on the mitigation of the ecological impact of a product or service. Eco-design is a main pillar of the circular economy, a strategy the principle of which is to give products an unlimited life within a closed, waste-free circuit. Designing with sustainable materials means that raw materials reach the end of their useful lives in a circular economy, subject to new uses under suitable conditions, as opposed to a buy-use-box or 'linear' economy.

The aim of eco-design is to mitigate and to bring to a minimum the overall ecological impact of a product or service. It refers to innovative product and service design solutions that take into account the entire life cycle - from raw material extraction to production, distribution, and use - to recycling, 'repairable', and disposal. It is just as important to reduce pollution during production as it is throughout the product's life cycle. However, eco-design is a stable and evolving concept, and rather than an eco-friendly product label, think of it as a design approach.

Ecodesign of a product involves the production of a product with the aim of boosting its ecological characteristics throughout its life cycle.

Ecosystems help solve all issues related to stages or end-of-life to predict the choice of material, fabric, and assembly, designing products to improve recycling quality. Integrating materials from recycled equipment into new products is part of this beneficial approach.

Topic 2: Eco-design directive

Directive 2009/125/EC of the European Parliament and of the Council of 21 October 2009 has established a framework for the setting of eco-design regulations for energy-related products

The Ecodesign Directive provides EU-wide consistent rules to improve the ecological characteristics of products such as household appliances, information and communication technologies or engineering. The directive sets mandatory minimum requirements for the energy efficiency of these

products. It helps prevent trade barriers, boosts product quality and protects the environment.

Energy Labeling Regulations can supplement these eco-design requirements with mandatory labelling requirements. Regulation (EU) 2017/1369 of the European Parliament and of the Council of 4 July 2017 offering a framework for energy labelling and repealing Directive 2010/30/EU

■ Sustainable design certification

There are specific rules on eco-design to certify sustainable products introduced on the market. There are three certificates:

Cradle to Cradle (C2C): The system certifies and promotes innovation in sustainable products in five key categories: material health, material recycling, renewable energy and carbon management, water management, and social equity. ISO 14062: This international environmental standard assesses the integration of environmental factors into product design and development.

ISO 14001: This standard allows companies to demonstrate their commitment to the environment by managing the environmental risks associated with their operations.

Topic 3. Features and examples of eco-design

Features of eco-design based on recycling, and reuse concepts. The main features are based on reusable, bio/eco-materials or use fewer materials with a goal to use less energy and reduce emissions. The task of manufacturing to use less material is a challenge but a circular approach could help to integrate eco-design solutions.

Production and marketing working together should decide about a common eco-approach to the design and try to stimulate if it is possible not to use any packing for products that can be sold without packing. If products must be packed should be search-friendly materials for the environment, easily reusable, recycled, and best for nature.

Refuse to use exaggerated packing material only to present to the customer product as a present. Clearly articulate to the customer idea about the eco-design approach. Emphasise that products are manufactured with recyclable materials and clean energy. Present products to the local community and try to reduce transportation costs. Important to educate the customers and manufacturing about the importance of reducing extra packing.

	<p>Eco-design solutions could bring to the customer green messages and sustainable informal education and spread the ideas of sustainability.</p> <p>Responsibility from the production and customer side should be clearly expressed and responsible consumption should stimulate changes in production and manufacturing.</p> <p>Customers' awareness of the differences between eco-design and simple design should encourage them to choose a responsible approach to the market.</p> <p>Conclusion</p> <p>Eco-design offers leading-edge and appealing solutions, viewed from a perspective that encircles aesthetics, functionality, user-friendliness, and of course sustainability and environmental sympathy. An important matter of Eco-design is to construct products, services, and systems with a minimal negative impact on our health and environment – in all stages of their lifetime.</p>
<p>References</p>	<p>Regulation (EU) 2017/1369 of the European Parliament and of the Council of 4 July 2017 setting a framework for energy labelling and repealing Directive 2010/30/EU (Text with EEA relevance.) https://eur-lex.europa.eu/eli/reg/2017/1369/oj</p> <p>C2C Platform is an experienced assessment body for Cradle to Cradle Certified® products https://www.c2cplatform.eu/</p> <p>European standards https://www.en-standard.eu/environmental-management-systems-iso-14001/</p>
<p>Interactive questions for R3</p>	<p><i>Is the following statement correct "Eco-design solutions could bring to the customer green messages and sustainable informal education and spread the ideas of sustainability"?</i></p> <p>Yes No</p> <p><i>Please choose if the statement is true or false</i></p> <p><i>"The circular design and eco-design focus to increase the ecological impact of a product or service"</i></p> <p>True False</p>

Keywords	eco-design, products lifecycle, environmental approach
Questions for reflection	<ol style="list-style-type: none"> 1. ARE YOU A SELF-AWARE CONSUMER OF ECO-DESIGN? 2. Do you have ideas on how to use eco-design ideas in daily life?
Additional resources	
Icons & related info for the hints of the PowerPoint presentation	<p><i>Please, insert here the icons and the related information that should pop-ups within the PPT as hints.</i></p> 
Author(s)	<i>Živilė Navikienė, S.A.F.E.Projects</i>