

# TRAINING DESIGN

## Work package n°3 - Teachers training activities

**Topic: Design for a circular economy**

### General overview:

The activity is designed for high school teachers from 5 countries involved in the **Erasmus+ / KA220-SCH - Cooperation partnerships in school education project**  
**Project N°: 2022-1-RO01-KA220-SCH-000087450**

Activity duration: 5 days - 6 hours each

Participants: 25 participants

Place: Aurel Vlaicu University of Arad, Faculty of Engineering  
Building B

### Scope of activity:

All these specific proposed objectives contribute to achieving the general objective of the project, namely to develop in students and teachers in partner schools a positive attitude towards reducing the consumption of textile products and reducing the amount of textile waste, to reduce the amount, to ensure re- use and recycling, to protect natural resources, protect the environment, energy recovery and prevent climate change. People should be encouraged to reuse all textiles before recycling, reused as many times as possible thus reducing carbon footprint.

### Performance objectives:

- to develop in the teaching staff of the partner schools, competencies regarding the circular economy and circular product design
- to enhance the quality and European dimension of teaching process in partners schools
- to improve the competencies in foreign language communication skills for both pupils and teachers by participating in LTTA's and activities on eTwinning
- to interconnect different systems of education.

### Course structure:

1. Product life cycle, notions of eco-design and the principles of circular / sustainable fashion
2. The principles of eco-design applied in the textile and fashion industry



## Day 1

Hour	No. of Minutes	Subject/Topic	Description	Method	Materials
9:00	60 min	Event opening	Welcome address by AVU`s managerial team		
10:00	30 min		Welcome address by the project organizer – <i>Francisc Neuman</i> Highschool, Arad		
10:30	30 min	Project presentation	Project description – prof. Anca Marilena Lupei		Video projector Laptop
11:00	20 min	Break			Coffee break
11:20	30 min	Overview- Aurel Vlaicu University / Faculty of Engineering			Video projector Laptop
11:50	30min	Introducing the textile technologies collective			Video projector Laptop
12:20	40 min	Visit -textile labs			
13:00	30 min	Break			Lunch
13:30	90 min	Introducing participants	the <i>Teams of two people will be formed by drawing lots (there will be 25 cards placed in a container, numbered from 1-12. Each participant will draw a card, identical numbers will form a pair). In 15 minutes, the two will exchange information about themselves. In the following 70 minutes, each</i>	Interview	A4 sheets Pen Numbered cards

			participant will introduce their team member to the entire group.		
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## Day 2

Hour	No. of Minutes	Subject/Topic	Description	Method	Materials
9:00	5 min	Introduction	Group greeting: “Good morning and welcome to our first training activity” Trainer introduction	Conversation	
9:05	10 min		<b>Ice-breaker: exercise</b> The purpose of this exercise is to highlight the activities and hobbies of the participants. Each participant will receive 3 post-it notes on which they will write one activity they have done, one hobby, and one proposed activity they would like to do during the workshop. At the end, a <i>flower of the group</i> from each country will be created, which will include the activities of the participants.	<b>“The flower of the team”</b> Expectations, apprehensions and moods	Colored Post-it notes, scotch tape, markers
9:15	5 min		Presentation topic: 'Product lifecycle, principles of circular/sustainable fashion'. Objectives	PowerPoint Presentation	Video projector Laptop
9:20	5 min	Defining and explaining product lifecycle for	<b>Defining product lifecycle in the fashion industry and introducing</b>	PowerPoint Presentation	Video projector Laptop

		textile/clothing products	<p><b>specific key terms</b></p> <p><b>Exercise (brainstorming):</b></p> <p><i>Participants will suggest the creation of a clothing manufacturing company. Each team will write on a piece of paper the name of a clothing product for the company to start its activity with. The papers shall be placed in a bowl and drawn, and each team will describe the product lifecycle for the selected item. The proposed products will be classified based on their lifecycle duration. The item with the longest lifecycle will be selected, and the production activity will begin with that product.</i></p> <p><i>By the end of the exercise, each participant will be able to identify the lifecycle stages of a clothing product and assess its duration."</i></p>		
9:30	10 min	Explaining the concept of linear economy	<p>Explanation of the term 'linear economy' and presentation of its principles</p> <p><b>Exercise (brainstorming):</b></p> <p><i>Each team will choose a clothing product and describe it according to the principles of linear economy. By</i></p>	PowerPoint Presentation	Video projector Laptop

			<i>the end of the exercise, each participant will be able to estimate the volume of raw materials and waste generated by a product under the linear economy model and answer the question: Is linear economy viable under current economic conditions?</i>		
9:40	10 min	Explaining the concept of circular economy	<p><b><i>Defining and explaining key terms pertaining to circular economy</i></b></p> <p><b>Exercise:</b></p> <p><i>The 5 teams will choose a clothing product from the 5 previously proposed and analyze it in order to determine how it can fit into the circular economy model. In the end, they will identify at least two reasons why circular economy can be a viable model. Word game: the following words will be put in order with reference to linear and circular economy: waste, clothes, raw materials, recycling, incineration, reuse, pollution, slow decomposition, environment.</i></p>	PowerPoint Presentation	Video projector Laptop
9:50	10 min	Methods of migrating from linear economy to circular economy	<p>Presenting the "butterfly diagram" and explaining the continuous flow of materials in the technical and biological cycles</p> <p><b>Exercise (brainstorming):</b></p>	PowerPoint Presentation	Video projector Laptop

			<p><i>The 5 teams choose a clothing product and compare its economic efficiency by analyzing it through the linear and circular economic frameworks.</i></p> <p><i>In the end, it is to be determined which of the two frameworks is more suitable for the current economic context.</i></p>		
10:00	5 min		<p>Topic introduction: Principles of Sustainable Circular Fashion Objectives</p>	PowerPoint Presentation	Video projector Laptop
10:05	15 min	<p>Durability, repairability, recyclability – defining and explaining the terminology</p>	<p><b>Definition of terms: durability, repairability, recyclability</b></p> <p><b>Exercise (brainstorming):</b></p> <p><i>The 5 teams choose a clothing item and present its capabilities regarding durability, repairability, and recyclability. Each team will also suggest at least two ways in which the item could be improved to better align with the principles of sustainable and circular fashion. At the end, the teams will discuss and compare their findings, highlighting the importance of designing and producing clothes that are both fashionable and sustainable.</i></p>	PowerPoint Presentation	Video projector Laptop
10:20	10 min	<p>Fast fashion is to be replaced by sustainable fashion</p>	<p><b>Defining “Fast fashion”.</b></p> <p><b>Exercise (brainstorming):</b></p> <p><i>Each team selects an article of clothing and describes its evolution</i></p>	PowerPoint Presentation	Video projector Laptop

			<i>and how it fits into the "fast fashion" model.</i>		
10:30	10 min	Access to remediation and reuse services	<p><b>Defining remediation and reuse services.</b></p> <p><b>Exercise (brainstorming):</b>  <i>For the article framed and described as "fast fashion", a "second chance" is proposed.</i></p> <p><i>The "cluster" method</i></p> <ol style="list-style-type: none"> <li>1. <i>Write a keyword to be researched in the center of the page.</i></li> <li>2. <i>Write down all the ideas that come to mind around this keyword for the respective topic.</i></li> <li>3. <i>Connect the initial keyword with the other words/ideas. Connect the words/ideas that are related to each other.</i></li> <li>4. <i>The activity ends when all the words/ideas have been connected, or when the time expires."</i></li> </ol>	PowerPoint Presentation	Video projector Laptop
10:40	10 min	Responsibilities pertaining to waste management, recycling, storage and disposal	<p><b>Presentation of reuse, recycling, and storage methods.</b></p> <p><b>Exercise (method: know, want to know, learned)</b>  <i>Three teams will be formed that will</i></p>	PowerPoint Presentation	Video projector Laptop



			<p><i>address the following three questions:</i></p> <ol style="list-style-type: none"> <li><i>1. Where do material losses occur in the production process?</i></li> <li><i>2. How can waste materials be reused?</i></li> <li><i>3. What can be done with clothing items at the end of their lifecycle?</i></li> </ol> <p><i>The answers will be listed in a table with three columns: "know", "want to know", and "learned".</i></p>		
10:50	10 min	Recapitulation	With the help of the trainees, the topics covered in the first module are reviewed and conclusions are drawn.	Fish Bowl	
11:00	20 min	Break			Coffee break
11:20	5 min	Introduction	Group greeting: "Hello and welcome to the second activity of today,"The trainer will then be introduced.	Conversation	
11:25	5 min		<p>The topic for today's session is "Sustainability; Eco-design - definition, approaches."</p> <p>Objectives overview</p>	PowerPoint Presentation	Video projector Laptop
11:30	10 min	Sustainability	Defining the concepts. Sustainable production and sustainable consumption. EU strategy for sustainable textiles.	PowerPoint Presentation	
11:50	15 min	Concepts pertaining to	The concept of eco-design.	PowerPoint	Video projector

		eco-design	Fundamental principles of circular systems thinking Steps for attaining circularity via Eco-design; Key aspects of Eco-design	Presentation	Laptop
11:55	10 min	Ecological product development Key aspects of Eco-design	The durability, reusability, upgradability, and repairability of products will be analyzed, along with the methods of achieving these characteristics and their benefits.	PowerPoint Presentation Conversation Interactive presentation	Video projector Laptop
12:05	10 min		The identification of substances that inhibit circularity will be addressed.	PowerPoint Presentation Conversation	Video projector Laptop
12:15	10 min		Refabrication and recycling will be defined and explained, including the methods of achieving these processes and their benefits.	PowerPoint Presentation Conversation	Video projector Laptop
12:25	10 min		Recycled materials content analysis	PowerPoint Presentation Conversation	Video projector Laptop
12:35	10 min		Carbon footprint and environmental footprint	PowerPoint Presentation Conversation	Video projector Laptop
12:45	5 min		Digital product passport <b>Request for information; digital product passport for textile products</b>	PowerPoint Presentation Conversation	
14:50	10 min	Recapitulation	With the help of the trainees, the topics covered in module 2 will be reviewed and conclusions will be drawn.	Fish Bowl	
13:00	30 min	Break			Lunch
13:30	5 min	Introduction	Group greeting: Hello and welcome to the third activity of today," The trainer	Conversation	

			will then be introduced.		
13:35	10 min		<p><b>Ice-breaker:</b> <i>This is an exercise designed to lighten the mood and help participants get to know each other.</i></p> <p><i>Each participant will be asked to name three things, the most important things, that they would like to share about themselves while wrapping a colored thread around a ball of yarn. Once they finish, they will pass the ball of yarn to the next participant. The ball of yarn suggests perfection, homogeneity, cooperation... which is what is desired from a working group.</i></p>	Magic thread	Colored ball of yarn
13:45	5 min		<p>Topic introduction "Approaches to eco-design in the textile and fashion industry." Objectives overview</p>	PowerPoint Presentation	Video projector Laptop
13:50	10 min	Sustainable textile products portfolio	<p>A presentation of sustainable/durable textile products will be given.</p>	PowerPoint Presentation Interactive presentation	Video projector Laptop
			<p><b>Exercise: "The Traffic Light"</b></p> <p><i>Each participant will be given three cards (red, yellow, green). The trainer will provide examples of raw materials/textile products. Using the cards, participants can indicate their opinion (green - "sustainable", yellow</i></p>	Role play	Colored cards

			- <i>could be sustainable, but not always, red - not a sustainable product</i> ).		
14:00	10 min	Understanding and evaluating a sustainable supply chain.	Presentation of a supply chain. Identification of a sustainable supply chain.	PowerPoint Presentation Interactive presentation	Video projector Laptop
14:10	20 min	Business model proposition	The CANVAS model will be presented, and examples of other business models will be given.	PowerPoint Presentation Interactive presentation	Video projector Laptop
14:30	10 min	Recapitulation	With the help of trainees, the topics covered in module 3 are reviewed and conclusions are drawn.	Fish Bowl	
14:40	10 min	Conclusions	The activity will end with presenting some general conclusions related to circular economy, product life cycle, eco-design, and ecological design.	Conversation	Flipchart Marker
14:50	10 min	Instead of evaluating...	A brief summary of the activities from days 3 and 4 is presented, and the participants are thanked for their participation.	Conversation	

### Day 3

Hour	No. of Minute	Subject/Topic	Description	Method	Materials
9:00	5 min	Introduction	Group greeting: "Hello and welcome to the second activity - the applied part."	Conversation	
9:05	5 min		<i>Ice-breaker: Each member of the group will say what they like most about themselves. It is very important that the beginning of the sentence should be: "I like myself the most when...", and participants will complete this statement with what applies to them. The facilitator will start with an example.</i>		
9:10	5 min		General presentation of the activities that will take place on days 3 and 4. The working method is explained and the expectations are outlined.		
9:15	5 min	Objectives and challenges overview	Activity overview and work method presentation		
9:20	15 min	Establishing work teams	Five teams will be formed, each consisting of 5 members, each from a different country and with different specializations if applicable (e.g. textile, design...). Each team will designate a moderator and choose a team name.		
9:35	15 min	Product examination	Each team will be given a piece of clothing to examine and propose a life cycle for it; the team moderator will present the solution to all the participants.	Conversation Small group work Brainstorming	Post-it Whiteboard Markers White/colored A4 sheets
9:50	30 min	Re-designing the clothing item	Product analysis: A series of questions will be answered:		Post-it Whiteboard

			<ul style="list-style-type: none"> <li>• Ask yourself or one of the workshop attendees what value a cloth item can offer?</li> <li>• What are the user's requirements?</li> <li>• How is it put to use?</li> <li>• What characteristics are crucial to users, and which are optional?</li> </ul> <p>Each team member answers the questions, and then the team decides on the final version that will be written on the worksheet. The moderator of each team presents the answers to all the participants.</p>	<p>Conversation Small group work Brainstorming</p>	<p>Markers White/colored A4 sheets Worksheets</p>
10:20	40 min	Smart Material Selection	<p>The garment is analyzed in terms of its components (e.g. buttons, zippers, snaps, labels, base material, auxiliary materials, etc.). It is recommended to take apart the garment to identify the components and separate the materials. Each team completes the component list on the worksheet, following the model presented on the sheet.</p>	<p>Conversation Small group work</p>	<p>Scissors White/colored A4 sheets Worksheets Sharpie</p>
11:00	20 min	Break			Coffee break
11:20	30 min	Decision tree	<p>The decision tree is reviewed one by one for each component identified previously.</p>	<p>Conversation Small group work</p>	<p>Worksheets Markers</p>
11:50	35 min	Fibrous composition	<p>Determine the fibrous composition for the textile components using the burn test. Fill in the composition of each component on the worksheet</p>	<p>Small group work</p>	<p>Lighters Tweezers</p>
12:25	35 min	Fibrous composition	<p>Determine the fibrous composition for the textile components using microscopy. Fill in the composition of each component on</p>	<p>Small group work</p>	<p>Microscope Markers</p>

			the worksheet.		
13:00	30 min	Break			Lunch
13:30	30 min	Smart Material Selection	Using the decision tree method establish what happens to each material once the current cycle is completed. Fill in the worksheet accordingly.	Conversation Small group work Brainstorming	Worksheets Markers
14:00	20 min	Re-designing the clothing item based on circular fashion principles - Step 1	<p>Pasul 1 - Eco-design challenge <b>Who</b> needs <b>what</b> and <b>why</b>?</p> <p>The following questions are to be answered:</p> <ul style="list-style-type: none"> <li>• Objective and work products (what should be attained?)</li> <li>• For whom?</li> <li>• The problem: consumer's needs, environmental impacts, etc.</li> <li>• The product/service, solution</li> <li>• What should the "solution" accomplish? Which environmental impacts are to be mitigated?</li> </ul>	Conversation Small group work Brainstorming	Worksheets Markers
14:20	30 min	Conclusions	<i>The participants are seated on chairs. In front of them, there is an empty chair. Each trainee will take turns sitting in the front seat and will put on the thinking hat, becoming the speaker. They will mention one thing they have learned from the course and one thing they would like to learn in the following days. Participants are not allowed to repeat what was said previously. The lecturer will note on a board the things the trainees want to learn so that they can adjust their information for the next day</i>	<b>Thinking hat</b>	Whiteboard, markers Hat

14:50	10 min	Instead evaluating...	of	4th day activities overview; thanking the trainees for their participation	Conversation	
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#### Day 4

Hour	No. of Minutes	Subject/Topic	Description	Method	Materials
9:00	5 min	Introduction	Group greeting: "Hello and welcome to the second part of the applied activity "	Conversation	
9:05	5 min		<i><b>Ice-breaker:</b> Each participant is given an A4 sheet of paper and a marker. They will draw the outline of their palm on the paper and complete the following information on each finger, according to the model presented: Name on one finger Occupation on another finger Where they see themselves in 5 years on another finger A hobby on another finger "A secret" on the last finger.</i>		Colored A4 sheets Markers Scotch, paper
9:10	10 min	Shape your design challenge	<b>Objective:</b> Develop a viable solution for the design problem that they can prototype as a circular system. Each participant is expected to come up with a solution for the redesign of the product	Brainstorming	Post-it Markers Whiteboard
9:20	20 min		Each participant will share their chosen	Brainstorming	Post-it



			solution to the team.		Markers Whiteboard
9:40	15 min		The best idea from the group will be voted on. It can be supplemented with other ideas.	Brainstorming	Post-it Markers Whiteboard
9:55	20 min		Each team moderator will present their group with the solution	show & tell	Whiteboard Post-it
10:15	45 min	Product creation	The product(s) proposed by the team will be made		Textile product Thread, buttons, scissors, tailor's chalk, sewing needles, snaps, cord, textile threads, ruler, sewing machines
11:00	20 min	Break			Coffee break
11:20	100 min	Product creation	The product(s) proposed by the team will be made		Textile product Thread, buttons, scissors, tailor's chalk, sewing needles, snaps, cord, textile threads, ruler, sewing machines
13:00	30 min	Break			Lunch
13:30	30 min	Product creation	The product(s) proposed by the team will be made		Textile product Thread, buttons, scissors, tailor's chalk, sewing needles, snaps, cord, textile threads, ruler, sewing machines
14:00	20 min	Product presentation	Each team will present the product(s) to the group of participants		Textile product
14:20	10 min	Establish the lifecycle of the product conceived for a circular economy	Explain effects of design on environmental impacts of production and/or other life cycle phases.	Conversation Explanation Brainstorming	
14:30	20 min	Today... instead of		Feedback	2 chairs

		evaluation	<p>In the middle of the classroom, I will place two chairs facing each other. One will be named the "positive chair" and the other the "negative chair." The trainees will be invited to form a circle around the chairs and take turns sitting in each chair, briefly sharing something positive and something negative about the course session.</p> <p>I will start by sitting in the positive chair and saying, "I am happy that this project exists, that I had the opportunity to meet professors from different countries, and that we were able to cover all the items on the agenda."</p> <p>Then, sitting in the negative chair, I will say, "However, I regret that we have so little time to get to know each other."</p>	Evaluation	
14:50	10 min	Conclusions	The participants are given questionnaires to determine the effectiveness of the course.		Questionnaires

### Day 5

Hour	No. of Minutes	Subject/Topic	Description	Method	Materials
9		Research visit	All participants went on a study visit to Timișoara, to a creative workshop ONE SHIRT		

