



CIRCULAR ECONOMY PRACTICAL TRAINING MATERIALS
FOR PLASTIC MANUFACTURING INDUSTRIES

Certificate of Participation

Course

“Circular Economy Expert in Sustainable Plastic Product”

RAQUEL ORTEGA GARCÍA

has successfully completed **Module 1: General Circular Economy** level I-VET-VET

Education with a duration of **0.75 ECTS (18.75 hours)**

Date

Responsible of the entity
Entity

Signed by Circvet partners



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MODULE 1: GENERAL CIRCULAR ECONOMY

CONTENT

1. Presentation and definition of concepts related to the circular economy.
2. Circular Economy implementation strategies
3. Regulatory Framework and Circular Economy business models

MODULE 2: ECO-DESIGN AND LCA

CONTENT

1. General aspects of eco-design: application to the plastic sector
2. Design guidelines of plastic packaging for minimum waste and efficient sorting
3. Life Cycle Sustainability Assessment principles and methods (LCA, SLCA, LCC)
4. Training with LCA software
5. Redesign based on LCA results.
6. Environmental product declaration, ecoindicators and certification
7. End of life scenarios



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“Circular Economy Expert in Sustainable Plastic Product”

RAQUEL ORTEGA GARCÍA

has successfully completed **Module 3: Digital Skills** level I-VET-VET

Education with a duration of 0.75 ECTS (18.75 hours)

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MODULE 3: DIGITAL SKILLS

CONTENT

1. Blockchain applied to the traceability of materials
2. Digital manufacturing (DM)
3. Simulation/Motorization
4. LANS
5. Robotics/artificial intelligence
6. The Cloud
7. Internet of Things
8. Big Data Analysis
9. Cyber security
10. Augmented reality



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MODULE 4: RECYCLING, DOWNCYCLING, UPCYCLING

CONTENT

1. Current situation in Europe and waste management in different industrial sector
2. Recycling technologies

MODULE 5: MANUFACTURING PROCESSES

CONTENT

1. Manufacturing processes in the context of circular economy.
2. Recycled materials and composites to manufacturing processes.
3. Bio-based and/or biodegradable materials to manufacturing processes.

MODULE 6: USERS AND USAGES

CONTENT

1. Introduction to ecolabels
2. Ecolabels in practice
3. General aspects related to understanding consumer needs with respect to sustainable products.
4. Consumer awareness
5. Consumer willingness to pay for sustainable products.
6. Communicating products' sustainability



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“Circular Economy Expert in Sustainable Plastic Product”

RAQUEL ORTEGA GARCÍA

has successfully completed **Module 7: Recovery** level I-VET-VET

Education with a duration of 0.75 ECTS (18.75 hours)

Date

Responsible of the entity
Entity

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MODULE 7: RECOVERY

CONTENT

1. Presentation and definition of concepts related to materials recovery and added values.
2. Introduction - Definition of concepts
3. Identifying Rs business opportunities
4. Strategies of eco-design and spare parts, design for disassembly and recyclability
5. Reverse logistics concept

MODULE 8: ENTREPRENEURSHIP

CONTENT

1. Presentation and definition of concepts related to entrepreneurship and innovation.
2. New business development
3. Technology transfer and intellectual property rights