

D 6.4 - Validation Analysis and Recommendations (VET Centers and Universities)

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1. Introduction

The CIRCVET project ("Circular Economy Practical Training Materials for Plastics Manufacturing Industries") aims to design and provide a comprehensive, free, and needs-based training concept for the circular economy in the plastics processing sector at the European level.

The project consortium, consisting of partner organizations from six EU member states (Spain, Portugal, Italy, France, Germany, and Lithuania), aims to systematically promote the implementation of and awareness for circular economy principles in the plastics processing industry. This will be achieved by specifically strengthening the awareness, expertise, and practical skills of professionals in this sector.

The aim of this document is to develop a standardized assessment framework for evaluating the final training materials at I-VET and H-VET levels (Initial and High Vocational Education and Training levels). The focus is on vocational training centers, such as vocational schools and universities.

Although universities have a higher level of content and the documents from WP2 were also prepared in a differentiated manner, the validation procedure is the same for VET centers and universities.

2. Validation Process and Methodology

In this report, the responsible task leader presents the validation process that will be implemented within the consortium for the final approval and quality assurance of the training content.

By definition, validation means the systematic review of a method (in this case, the learning method) to confirm that the method is suitable for its intended purpose.

It is important that the review (validation) takes place in a real environment and under real conditions. The results of the validation are recorded and evaluated, thus representing a central element of good analytical practice before a developed process is permanently implemented.

The following steps apply to the implementation of a structured process validation:

- Defining the scope and objectives. Selecting an appropriate validation approach.
- Designing and implementing a validation protocol.
- Evaluating and interpreting the validation data collected.

In the context of the CIRCVET project, the first step aims to ensure that the training content developed is aligned with the real needs of the plastics processing industry.

In the following sections, the task leader explains the recommended procedures and best practices to be applied during validation at vocational training centers.

3. Validation Approach with VET Centers and universities

The training materials were reviewed in advance in the relevant work packages and tested in initial pilot applications. However, as this did not take place under real conditions, the actual validation phase is now following.

After completion of the pilot phase, the content was revised based on feedback from pupils, trainees, and students.

The previous piloting process has thus been completed and documented in full. The training materials modified and quality-assured by the responsible partners were evaluated and finalized in collaboration with the partners involved in the content.

This work package focuses on students from vocational schools (VET centers) for the validation of the training materials.

As part of the validation process, all training modules were made available to the students and conducted via the online platform. This serves to check the technical functionality and user guidance of the platform. At the same time, it should be ensured that participants can complete a module that is complete and relevant to them. This requires registration on the platform and successful completion of the corresponding evaluation tests.

4. Validation Design with VET Centers and universities

The validation process for the training materials was carried out in collaboration with the VET centers in several coordinated steps. First, the digital learning content for the platform was selected in close consultation with teachers and vocational trainers from the vocational schools to ensure that it was thematically and didactically appropriate for the respective curriculum. For this reason, all modules were made available in their entirety.

Pilot groups of students were then put together, covering different levels of training and specializations. These groups could either be freely assembled or belong to an existing class.

The participants were given access to the online platform and worked through one or more training modules in full.

During the training, usage data such as time spent on the platform, test results, and dropout rates were systematically recorded. The platform provided the necessary technical requirements for this.

At the same time, qualitative monitoring took place in the form of feedback forms, interviews, and group discussions to obtain feedback on comprehensibility, practical relevance, and user-friendliness.

The teachers observed the learning progress and checked the compatibility of the content with regular lessons. Where necessary, adjustments were made, for example by integrating practical examples or through technical optimizations.

The collected data was evaluated together with the participating vocational schools and project partners. The aim was to determine whether the content was both technically accurate and methodologically effective and could serve as a permanent addition to traditional training. Finally, a decision was made as to whether the validated material should be incorporated into regular lessons or further revised.

The validation process is scheduled to run from December 2024 to July 2025.

During this period, validation took place in various countries by the following project partners:

- Lithuania (APRC&VPM)
- Spain (ULPGC and AIJU)
- Italy (HIT)
- Germany (KIMW)
- Portugal (CENTIMFE)

4.1. Participants and KPI's

The number of students to be included is specified in the project description and was communicated to all partners again at the final partner meeting in June 2025, see Figure 1:

CIRCVET project approved

at least **140 students** participating in plastic related trainings

5 different countries to pilot the content,

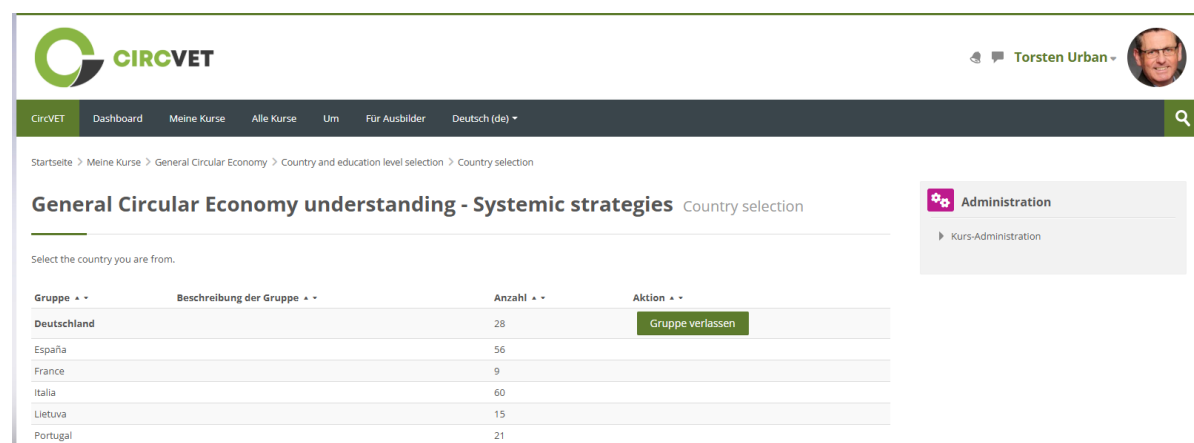
- Lithuania (APRC&VPM) 20 students
- Spain (ULPGC) 30 university students
- Italy (HIT) 30 university students
- Germany (KIMW) 30 students
- Spain+Portugal (AIJU+CENTIMFE) 15 students each from their own VET trainings

Time Schedule:

Dec 2024 – Jul 2025

Figure 1: KPI settings according to proposal

The number of VET centers or universities to be included is not fixed. The KPIs set are the minimum KPIs; partners may include more students than required. Several participants from the same VET center may also participate, but the required KPIs should be achieved in their entirety. Partners offer the validation activities in their native language. There are no restrictions on the position or skills that participants should have in order to take part in the activities.



General Circular Economy understanding - Systemic strategies Country selection

Select the country you are from.

Gruppe	Beschreibung der Gruppe	Anzahl	Aktion
Deutschland		28	Gruppe verlassen
España		56	
France		9	
Italia		60	
Lietuva		15	
Portugal		21	

Figure 2: Enrolled Students on the online learning platform

As shown in Figure 2, a total of 189 students are currently enrolled in the courses, exceeding the target number of 140.

Not all partner countries have reached their respective targets, but this is not considered critical, as the overall target has been achieved and further registrations are expected, which will enable the individual targets to be met.

4.2. Course Methodology

The validation courses within the validation process are structured as follows, but may be varied by each project partner at their own discretion.

- The validation cycle starts with an initial introductory course, which is moderated and technically supervised by the responsible partner. This first event includes a compact introduction to the overall structure of the CIRCNET course, a technical explanation of how to use the e-learning platform, and a summary of the content of a selected module.
- At fixed intervals, participants receive structured insights into the respective course modules. Each unit begins with a thematic introduction and is supplemented by a detailed presentation of the content.
- Upon completion of the final module (Module 8), the learning progress of all participants is individually assessed to verify that the course material has been properly and completely covered.
- Throughout the course, an assigned tutor provides didactic support to the learners. The tutor is responsible for monitoring learning progress and acts as a contact person for clarifying technical and subject-related questions.
- After successfully completing all course content and the associated tests, participants receive the CIRCNET certificate as proof of their participation and the skills they have acquired.

The schedule for a validation phase with a VET center or university is shown in Figure 3 as an example. In this case, emphasis was placed on ensuring that the course could be completed in a hybrid format, partly in person and partly online.

No	Activity	Duration
1	Face to Face: Initial Workshop - Introduction to Project, Content and Validation Procedure	60 min
2	Registration to MS Teams Group and/or Learning Platform	
3	Start working with the content	4 weeks
4	Face to Face or online: Intermediate Workshop - clarifying questions and difficulties, - Agree on further processing	60 min
5	Working online, Exercises, Tutorial work, Discussion	4 weeks
6	Face to Face or online: Final Workshop - Validation Questionnaire - Gathering Feedback acc. to D6.5	60 min

Figure 3: Time Schedule for validation sessions

According to this proposal, a validation procedure took approximately eight weeks, based on the average learning speed of students at VET centers. The total duration could also be adjusted individually by the partners and thus tailored specifically to the learning groups.

The workshops were designed to gather feedback on the course materials from WP2 and to test the knowledge transfer method.

4.3. Course Organisation and Dissemination

As the validation events were already designed to be hybrid, all courses can now be organized in person or online.

However, it is recommended that several in-person events be held in order to realize the full potential.

Partners can use all their communication channels (partner organizations' websites, social media channels, other local events, and private communication via phone calls, company visits) to engage participants; in addition, the CIRCVET project's media channels will be used to promote individual events.

It is recommended that the invitation and advertising for the workshop be sent to participants one month in advance, or better still, that the event be coordinated directly with the teachers or management of the VET center.

4.4. Course Content

The courses use examples from the specified topics (WP2) and the additional information provided in the form of videos, websites, or further reading.

The partners may also invite additional speakers to give a presentation on the relevant topic of the module. These may be representatives from companies, other teachers, or professors who are familiar with topics related to the circular economy in order to present examples of best practices.

The speaker should be experienced and have already implemented the topics of the learning units in practice. They should be able to moderate the practical exercise for solving business cases (WP4). Partners can organize a visit to a company in the plastics industry that applies CE practices in order to exchange experiences.

4.5. Feedback Concept

In order to receive feedback and to ensure that the validation process is completed, students must take tests on the material covered in the e-learning platform. In addition, during the validation phase, students were asked to provide feedback via a questionnaire on the implementation and didactic delivery of the course. The questionnaire (Annex 1) was accessible via MS Forms and could also be evaluated there.

4.6. Validation Feedback of Participants

Feedback was collected from participants using MS Forms questionnaires and evaluated by the partners.

Below are some of the comments provided by students in response to the multiple-choice questions:

- In some of the presentations, there is more text than space on the slide, so that some of the text is not displayed correctly or is covered by a graphic.
- Some presentations are difficult to read because they cannot be displayed in full screen mode and the font is small. In some tests, two answers are requested, but only one can be selected.
- The same answer option is displayed multiple times in individual questions.
- The question pool is still very limited (when the tests are taken multiple times, the same questions are displayed again and again, only the answer options are in a different order).
- After completing a test, the correct answer is displayed (so you know immediately which answer is correct when you take the test a second time).
- In module 7, the answer option for the most recycled type of plastic is "pets" ;-)
- In module 7, there is a question without a question, where 'true' or "false" can be selected
- In module 7, no certificate can be downloaded
- In general, the translated texts should be thoroughly revised, as some students have complained that the translations sometimes distort the meaning and content of the text.

The overall assessment shows that there are still some minor formal or technical improvements to be made, e.g., regarding formatting, translations or downloads of certificates.

In general, it can be said that the didactic approach to training in VET centers and universities was successful and that there were no complaints from the students.

4.7. Certificates

On the one hand, at the end of each module, the students were issued a certificate generated by the system. On the other hand, the project partners issued certificates of participation in the validation phase.

For this purpose, the partners can use Annex 2 "Certificate Template" to hand out to the participants. The partners can adapt the template to their needs and translate it into their native language.

5. Annex

- Annex 1: Feedback Questionnaire (MS Forms)
- Annex 2: Certificate Template

6. Glossary of terms¹, abbreviations, and acronyms

Short Name of Partners	
P1-AIJU	Partner 1 - ASOCIACIÓN DE INVESTIGACIÓN DE LA INDUSTRIA DEL JUGUETE CONEXAS Y AFINES (Spain)
P2-CENTIMFE	Partner 2 - CENTRO TECNOLÓGICO DA INDÚSTRIA DE MOLDES, FERRAMENTAS ESPECIAIS E PLÁSTICOS - CENTIMFE (Portugal)
P3-KIMW-Q	Partner 3 - Non-profit organisation KIMW-Qualifizierungs GmbH (Germany)
P4-POLYMERIS	Partner 4 - POLYMERIS (France)
P5-PROPLAST	Partner 5 - Consorzio per la promozione della cultura plastica - PROPLAST (Italy)
P6-LINPRA	Partner 6 - LIETUVOS INŽINERINIS PRAMONĖS ASOCIACIJA LINPRA (Lithuania)
P7-ULPGC	Partner 7 - Universidad de las Palmas de Gran Canaria (Spain)
P8-IDL	Partner 8 - Infinitivity Design Labs (France)
P9-APRC	Partner 9 - ALYTAUS PROFESINIO RENGIMO CENTRAS (Lithuania)
P10-UNITR	Partner 10 - Università degli Studi di Trento (Italy)
P11-HIT	Partner 11 - HUB INNOVAZIONE TRENTO - Fondazione (Italy)
P12-VPM	Partner 12 - VISAGINO TECHNOLOGIJOS IR VERSLO PROFESINIO MOKYMO CENTRAS (Lithuania)
P13-KIMW	Partner 13 - Kunststoff-Institut Lüdenscheld (Germany)

¹ According to <https://op.europa.eu/en/publication-detail/-/publication/da7467e6-8450-11e5-b8b7-01aa75ed71a1>

PROJECT INFO

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Action Type	ERASMUS Lump Sum Grants
Project Title	CIRCNET - Circular Economy Practical Training Materials for Plastics Manufacturing Industries
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PROJECT CONSORTIUM



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CircVET Survey for Course Validation

1. How satisfied are you with the knowledge acquired in the course?

- ☐ Very satisfied
- ☐ Satisfied
- ☐ Neutral
- ☐ unsatisfied
- ☐ Very unsatisfied

2. Do you feel you have achieved your desired learning outcome?

- ☐ Yes
- ☐ No
- ☐ I am not sure

3. How would you rate the trainer's performance during the course?

1	2	3	4	5	6	7	8	9	10
---	---	---	---	---	---	---	---	---	----

Very Bad Excellent

4. Concerning Trainers: To what extent do you agree with the following statements?

	Totally disagree	Rather disagree	Neutral	Partly agree	Totally agree
The trainer was well prepared at the beginning of each lesson.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
The trainer clearly communicated the course expectations.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
The trainer encouraged the students to participate in the lesson	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
The trainer answered the students' questions thoroughly.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
The trainer had good time management during the lessons.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
The trainer clearly communicated the course assignments.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

5. Concerning Materials: To what extent do you agree with the following statements?

	Totally disagree	Rather disagree	Neutral	Partly agree	Totally agree
The training documents are written in a clear and understandable way	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
The documents include sufficient examples or case studies to illustrate concepts	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
The documents are logically structured and organised	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
The documents contain references to additional resources or further readings	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
The documents include practical applications, exercises, questions or activities to reinforce what has been learnt	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
The documents contain sufficient interactive elements such as links to videos, audio files or online sources.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

6. How effective were the learning activities used in this course (excursion, exercises, practical application)?

- ☐ Very effective
- ☐ Somewhat effective
- ☐ Neither effective nor ineffective
- ☐ Somewhat ineffective
- ☐ Very ineffective

7. Did the course meet your expectations?

- ☐ Yes
- ☐ No
- ☐ Maybe

8. How likely are you to recommend this course to a friend or classmate?

1	2	3	4	5	6	7	8	9	10
---	---	---	---	---	---	---	---	---	----

Not likely at all highly likely

9. Would you tell us your name? (Optional)

10. And your E-Mail? (Optional)

Geben Sie eine E-Mail-Adresse ein



CIRC VET

CIRCULAR ECONOMY PRACTICAL TRAINING MATERIALS
FOR PLASTIC MANUFACTURING INDUSTRIES

Validation Course [Date]
[Venue]

Please replace red text
by real data
and delete this text field

Certificate of Attendance Related to the training course “Circular Economy Expert in Sustainable Plastic Product”

This is to certificate that

_____ [NAME] _____

has successfully participated at the C-VET Level Validation Process

Date [dd/mm/yyyy]

Signed by Circvet partners



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