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# **CODESMA**

## **Grouping of learning outcomes into learning units**

Output O2-T1

**VSRC**

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## **1. INTRODUCTION**

The purpose of the report is to group the learning outcomes defined in the first Intellectual Output of the CODESMA project into three thematically focused learning units/modules, following specific criteria elaborated according to ECVET principles.

### **1.1. What is a unit of learning outcomes**

A unit is a component of a qualification consisting of a detailed set of knowledge, skills and competence that can be evaluated, validated and certified. Units enable progressive achievement through transfer and accumulation of learning outcomes defined in knowledge, skills and competence terms. Units of learning outcomes can be specific to a single qualification or common to several qualifications and may also describe so-called additional qualifications which are not part of a formal qualification or curriculum. They are subject to assessment and validation which verify whether the learner has achieved the learning outcomes expected.

### **1.2. ECVET principles**

ECVET stands for European Credit system for Vocational Education and Training. ECVET works hand in hand with the European Qualifications Framework (EQF) to provide greater transparency in European qualifications, promoting the mobility of workers and learners, and facilitating lifelong learning.

Successful ECVET implementation requires that qualifications be described in terms of learning outcomes; with learning outcomes brought together in units; and units often accumulated to form the basis of qualifications or awards. Assessment, validation and recognition processes must also be agreed among all those participating and should respect existing national, regional, sectoral or institutional practice. Furthermore, ECVET requires the use of units to facilitate the transfer, recognition and accumulation of assessed learning outcomes of individuals who are aiming to achieve a professional profile.



In cases where credit is able to be awarded, a points system might also be considered with points directly attributed to ECVET units and qualifications.

### 1.3. The data-driven learning outcomes approach

The elaboration of the original learning outcomes has been based on the evidence received from field experts on the current and future C&D waste management skills needs in the construction industry. The CODESMA learning outcomes are defined in the form of specific *knowledge, skills and competences*, the main of which are listed below in a significance-descending sequence. Their importance was based on the survey results obtained in the five countries of the CODESMA consortium (*O1-T3 Report prepared by Coventry University*), thus ensuring an evidence-based approach:

<b>KNOWLEDGE</b>
<i>1. Knowledge of processes and technologies of dealing with waste on site</i>
<i>2. Waste awareness for construction sites at the site mobilisation stage</i>
<i>3. Awareness of accessing relevant information regarding dealing with waste</i>
<b>SKILLS</b>
<i>1. Skills in handling of hazardous waste</i>
<i>2. Skills in managing construction waste</i>
<i>3. Skills in storing of hazardous waste</i>
<b>COMPETENCES</b>
<i>1. Ability to effectively supervise on-site works</i>
<i>2. Ability to provide confident leadership</i>
<i>3. Ability to monitor compliance with regulations</i>



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These learning outcomes form the basis of Intellectual Output 2: CODESMA learning units and VET integration guidelines. The learning outcomes will be grouped into learning units in line with ECVET principles to be delivered to end recipients (VET providers). The units will then be brought together into a qualification which will be recognised across participating EU countries.



## 2. METHODOLOGY

### 2.1. Designing learning units

The design of learning units for any course is dependent on the teaching practices, learning arrangements and assessment methods envisaged for its delivery. The CODESMA project has been prescribed to follow the learning outcomes approach, which has implications in the way the content will be taught, the teaching methods applied, the material used and the trainers' training arranged. The CODESMA units will each correspond to unique sets of knowledge, skills and competences, which will thematically address various aspects of skills relevant to an assortment of C&D waste management procedures and activities.

The approach adopted for designing the CODESMA learning units follows the shift to competence and career oriented education and training, in alignment with the research and results obtained in the first Intellectual Output (O1) of the project. It breaks down the overall learning outcomes to individual smaller learning outcomes that may be more easily mapped to the needs and realities of both learners and trainers. The process followed, in compliance with the provisions of the project's Application Form, has been to group and sequence learning outcomes logically in learning units, resulting in individual units that learners can select as being most relevant to their needs. At the same time, VET providers and trainers could take a unit from one course and use it with minor adaptation in another course. The CODESMA learning units design methodology also took into account that corresponding educational resources need to be provided openly for integration in online and face-to-face courses, as well as to be integrated in a VOOC, and avoided tight sequencing and interdependencies between the proposed learning units.

It should be further noted that CODESMA is expected to pursue a credit-based design (during the second activity of Intellectual Output 2), expressing the learning units (comprising of learning outcomes) in terms of credits. Therefore, changes to the proposed grouping of learning outcomes into learning units may be fine tuned to result in an ideal credit allocation.



## 2.2. Descriptors of units of learning outcomes

The ECVET recommendation suggests that the description of a unit should include the following information:

- the title of the unit;
- the title of the qualification to which the unit relates;
- the EQF level of the qualification (and, where appropriate, the NQF level);
- the ECVET points associated with the unit;
- the learning outcomes contained in the unit;
- the procedures and criteria for assessment of these learning outcomes, the validity in time of the unit, where relevant.

## 2.3. Grouping criteria

### Grouping criteria, based on European principles

Based on the European principles, a unit of learning outcomes should provide a comprehensive and consistent learning process. The criteria that should and have to be taken into consideration when determining the units of learning outcomes for CODESMA are the following:

- Units of learning outcomes can be completed and assessed, as independently as possible from other units of learning outcomes.
- Units of learning outcomes are structured in such a way that the relevant learning outcomes can be achieved in a specific time interval. Units of learning outcomes should therefore not be too extensive.
- Units of learning outcomes include all necessary learning outcomes in order to cover the objectives of the units.
- Units of learning outcomes are designed to be assessable.



### Grouping criteria, based on CODESMA targets

Based on the specific requirements and objectives of the CODESMA Project, the partnership also listed another set of grouping criteria that have been taken into consideration alongside the European ones:

- The learning units should correlate same sets of occupational tasks.
- The learning units should correlate the same technique.
- The learning units should correlate specific stages in the process of performing a service.
- The learning units should correlate the same field of skills.
- The learning units should be complementary, covering different aspects of C&D waste management procedures and activities.
- There should be learning units covering basic/general knowledge of C&D waste management, as well as learning units focusing on expertise, so that VET providers can be flexible in selecting which learning units to integrate.
- The learning units should cover the following topics:
  - Supervision of on-site works and processes regarding waste identification, separation and collection at source,
  - Identification of C&D waste generated,
  - Implementation of proper deconstruction and demolition practices, preparation and execution of waste management plans for site-works,
  - Elimination of hazardous waste,
  - Provision of guidance on the separation of materials that hamper recycling, dealing with technical and organisation challenges.



### 3. CODESMA LEARNING UNITS

Based on the above criteria and the objectives of the project, the partnership came up with the following groupings of learning outcomes into learning units. Further fields and descriptors for the learning units will be developed in the subsequent activity of CODESMA, O2-A2.

#### 3.1. Learning Unit A

<b>Title</b>	<b>Construction and Demolition Materials</b>
Description	This learning unit introduces the learner to different types of waste materials, including hazardous waste materials, and provides basic facts and principles for waste management.
Overall Learning Outcome	Learners should understand the fundamental principles, requirements and environmental impacts of waste classification and management and demonstrate how to apply on-site based framework for waste.
Learning Outcome 1	Ability to distinguish between hazardous and non-hazardous materials and arrange on site material management.
Learning Outcome 2	Have knowledge of types of hazardous waste and ability to manage hazardous waste on site.
Learning Outcome 3	Capability to identify and classify materials and waste and apply on-site based framework for waste.



### 3.2. Learning Unit B

<b>Title</b>	<b>C&amp;D waste management processes</b>
Description	This unit covers what a site/project manager is expected to know about development, implementation and review of a Site Waste Management Plan.
Overall Learning Outcome	Learners should understand the role and responsibilities of a site/project manager in overseeing the processes related to development and implementation of a Site Waste Management Plan and its communication for the on-site team.
Learning Outcome 1	Knowledge of responsibilities within and implementation of a Site Waste Management Plan.
Learning Outcome 2	Development of Site Waste Management Plan for a specific site and monitoring its implementation.
Learning Outcome 3	Ability to carry out after action review of Site Waste Management Plan and recommend improvements.



### 3.3. Learning Unit C

<b>Title</b>	<b>Waste management technologies</b>
Description	This unit covers technical and organizational aspects to recognise and utilise appropriate technologies for dealing with waste.
Overall Learning Outcome	Learners should understand the technical issues related to waste management, including good practices from non-construction sector, and demonstrate how to apply them in construction and demolition industries.
Learning Outcome 1	Having knowledge of waste management technologies and the utilisation of appropriate technologies on site.
Learning Outcome 2	Knowledge of existing technologies for waste within the sector and their optimisation on-site.
Learning Outcome 3	Investigation of existing technologies dealing with similar waste streams from non-construction sector to apply on site if feasible.