Validation, Assessment and Certification Methodology Guidelines

Contents

1. INTRODUCTION

1.1.   The eu-WELD project

This project was developed with aim to help welders all around EU in quick and easy recognition of their skills and qualifications.

Through this project, a special platform will be built to allow welders from across the EU to approach the same basic training and then certification.

The training was divided into a theoretical and practical part. Theoretical part will be carried out with the help of learning materials prepared in the form of ppt presentations, animations and films. The practical part will include training in manual skills by using simulated objects, i.e. 3D Augmented Reality - AR.

The main advantage lies in the fact that the candidate for welder acquires the basic knowledge by distance learning without any materials costs. In this way, it avoids long-lasting classical exercises in workshop, which are usually the biggest obstacle to rapid progress during training. This way of learning is very attractive and interesting for younger generations because they are very familiar with smart phones, tablets and 3D video games.

On this way it is possible to replace 100% of theoretical lectures in the classroom and up to 50% of the classical practical training in the workshop on welding machines.

An integrated training program is important so that welders throughout the EU have the same entry conditions to qualification exams for certification.

Upon completion of the training, applicants for welders will receive a certificate, which is an entry requirement for qualification exams and certification. The system for welder's certification will be standardized and will include the following steps:

- Application for certification;
- Confirmation of application by Certification body;
- Training;
- Qualification examination;
- Certification;

The preparation of the above mentioned methodologies was the subject of the eu-WELD project.

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The methodologies produced by the eu-WELD partners to reach project's objectives are the main outputs of the eu-WELD project, which are the following:

- **Training needs and competences** for European Welding Expert

- Possible national welding experts **qualifications** linked **to ECVET** guidelines

- **eu-WELD curriculum** consists of Basic welding technologies(Part I) and Basic s of fusion welding processes(Part II)

- **Courseware and e-learning courseware**

- **Methodologies and guidelines for validation, assessment and certification**

- **Augmented Reality case studies**

The eu-WELD project addresses the following **target groups**:

– Companies engaging in welding industry;

– Different Schools for welding personnel;

– Persons seeking employment in the field of welding;

– Welders of all ages who want to acquire new knowledge or refresh the existing knowledge;

– Welders who want to obtain a certificate recognized throughout the EU;

– Other stakeholders: VET providers, regional development agencies, political decision makers, chambers of commerce and industry, industrial associations etc.

1.2.   The eu-WELD Common Profile

In order to allow the eu-WELD partners to establish the e-learning courseware, the first step has been the definition of the eu-WELD Common Profile. This document includes a description of the occupational profile and has been elaborated and structured according to ECVET guidelines. The profile describes key activities and for each activity skills and knowledge needed. A set of ECVET points is allocated to each unit in order to allow its recognition and transfer in other existing qualifications and comparison with similar profiles

in different EU countries. The Common Profile was based on training needs and Competences Survey Report. It is including:

- an online survey among welding companies collecting quantitative information on the level of engagement of the main target groups in welding and training needs in these areas;

- a qualitative analysis based on in-depth interviews with welding personnel, engineers, managers in their respective companies or organizations (at least 5 interviews per country for a total of 25 interviews), to identify key training needs and competences of the eu-WELD and to define theoretical knowledge and practical skills the eu-WELD must have after completion of the training and certification;

- identification the similar welder training courses (regional/national)

The result of the study is a set of key subject areas units that define the eu-WELD training course. In   particular:

1. **Part I (Technology): BASICS OF WELDING**

    - General welding aspects

    - Materials used in fusion welding

    - Materials weldability and Heat Treatment

    - Quality Assurance and qualification in welding

    - Technical drawing used in welding field

    - Specific norms of health and safety for welding processes.

2. Part II(Processes): BASICS OF FUSION WELDING PROCESSES

    - Oxy-Gas welding

    - Manual Metal Arc welding process

    - TIG welding

    - MIG/MAG/FCAW welding

    - Submerged Arc welding

- Laser welding; Electron Beam welding; Plasma welding.

For each area of competence, a lesson plan has been devised.

1.3.   The eu-WELD e-learning course

The eu-WELD e-learning course is based on the above mentioned lesson plans, which have been processed to come to an innovative concept of an e-learning course, containing separate modules covering the topics listed in the previous paragraph and made up of interactive learning tools.

The e-learning course displays a modular architecture, providing for adequate flexibility and combining interdisciplinary contents from the fields of the welding technology and fusion welding processes.

The training course comprises a total of 12 modules containing several learning units, i.e. 6 modules on welding technology and 6 modules on welding processes.

The general structure of the modules is shown in the figure 1.
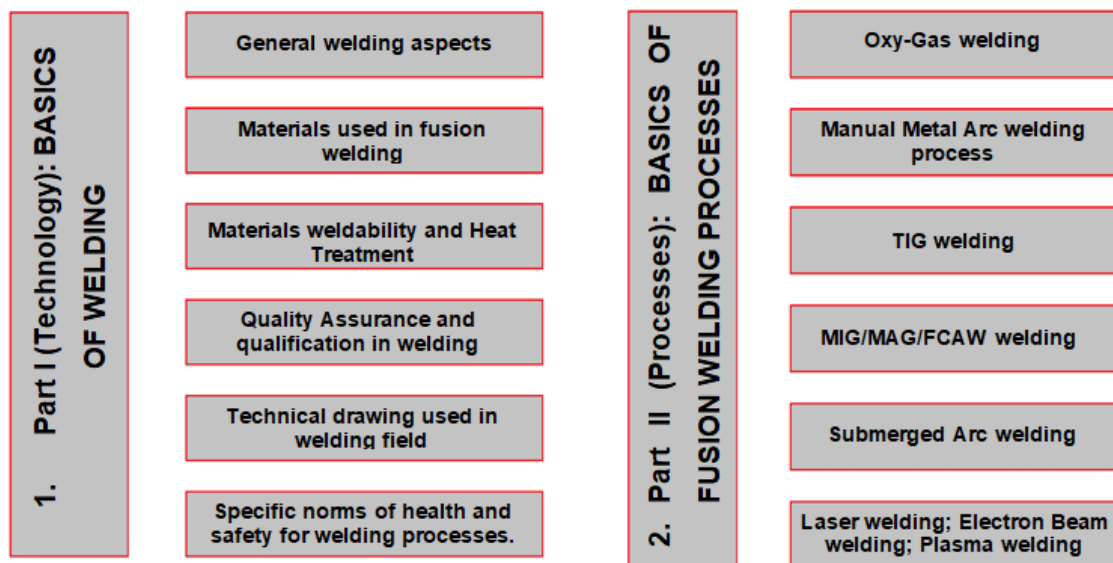
Figure 1. General structure of theeu-WELD curuculum modules

The learning material developed and included in the e-learning course includes:

− PPT -Slides

− Links to videos

− Links to additional external sources

- Formative tests for self-assessment

According to ECVET guidelines, the overall course is structured into learning outcomes (i.e. what the eu-WELD candidate should to know, understand and be able to do on completion of the learning process) related to each field of competence identified in the Common Profile. There is also number of hours for e-learning and for self-study.

The eu –WELD e-learning course is available on closed   LMS software application. An access is possible by every person interesting in this advanced training. Potential trainees need to register with crating user name and password.

2. Aim of these guidelines

The EU WELD project, among other things, has also developed methodologies for the validation of competences and for assessment performance of trainees. This activity comprises the components:

- Validation of prior learning for entering the training;

- Validation of learning outcomes on completion of the training;

- Assessment of performance of eu-WELD trainees during the online classroom training.

These guidelines provide details and instructions on the methodologies for the validation of competences and for the assessment of the performances of trainees, which take the European dimension of the project into due account.

3. EUROPEAN GUIDELINES FOR VALIDATING NON-FORMAL AND INFORMAL LEARNING

The methodology envisaged for the validation, assessment and monitoring of eu-weld trainees has been structured according to European standards (CEDEFOP 2009) and allows for the assessment and monitoring, transfer, validation and recognition of learning outcome (on the basis of ECVET points).

In particular, the sources addressed are:

- European guidelines for validating non-formal and informal learning (CEDEFOP, 2009)

- European credit system for vocational education and training (ECVET)

- European Qualifications Framework (EQF)

3.1   CEDEFOP

The May 2004 European Council adopted a cluster of common European principles for identifying and validating non-formal and informal learning, after having recognized the importance of learning outside the formal education and training context. Further studies on the same theme have led to the conviction that validating non-formal and informal learning is even more considered as a way of improving lifelong and lifewide learning.

The goals of CEDEFOP 2009 guidelines are both to support the European principles for validating non-formal and informal learning so to strengthen the comparability and transparency of validation approaches and methods across the different European Countries, and to recommend some detail on the structure and processes of validation.

Validation practice for informal and non-formal learning should be compatible also with the recommendation for a European quality assurance reference framework for Vocational Education and Training (VET).

The methods proposed for identifying and validating non-formal and informal learning:

INDIVIDUAL ENTITLEMENTS - identifying and validating non-formal and informal learning should, in principle, be a voluntary matter for the individual. There should be equal access

and equal and fair treatment for all individuals. The privacy and rights of the individual are to be respected.

STAKEHOLDER OBLIGATIONS - Stakeholders should establish, in accordance with their rights, responsibilities and competences, systems and approaches for identifying and validating non-formal and informal learning. These should include appropriate quality assurance mechanisms. Stakeholders should provide guidance, counseling and information about these systems and approaches to individuals.

CONFIDENCE AND TRUST - The processes, procedures and criteria for identifying and validating non-formal and informal learning must be fair, transparent and underpinned by quality assurance mechanisms.

CREDIBILITY AND LEGITIMACY - Systems and approaches for identifying and validating non-formal and informal learning should respect the legitimate interests and ensure the balanced participation of the relevant stakeholders.

The methods and tools indicated in the CEDEFOP 2009 guidelines for validating non-formal and informal learning are basically the same of assessing formal learning. The only difference is that, in the first case, tools have to be shaped to fit the individual specificity and non-standardized character of non-formal and informal learning.

The guidelines address the wide range of policy-makers and practitioners involved in developing and implementing validation arrangements at different levels.

The guidelines do not have any legal value, European Member States are not forced to apply their prescriptions, and their implementation is on a voluntary basis.

Anyway, according to CEDEFOP 2009, European guidelines for validation of non-formal and informal learning are critical to combine and standardize the different validation systems that have been developed in different European Countries.

3.2 ECVET SYSTEM

To facilitate the recognition and the transfer of the learning results achieved in vocational education and training, formal, informal and non-formal learning, the European Credit System for Vocational Education and Training (ECVET) has been set up by the European Commission.

The key concepts and processes of ECVET are:

- **Learning outcomes**, which are statements of knowledge, skills and competence that can be achieved in a variety of learning contexts.

- **Units** of learning outcomes, which are components of qualifications. Units can be assessed, validated and recognized.

- **ECVET points**, which provide additional information about units and qualifications in a numerical form.

- **Credit** that is given for assessed and documented learning outcomes of a learner. Credit can be transferred to other contexts and accumulated to achieve a qualification on the basis of the qualifications standards and regulations existing in the participating countries.

Figure 2: Source https://yourcompetences.com/en/toolbox-uk/pendant-la-realisation-2/test/
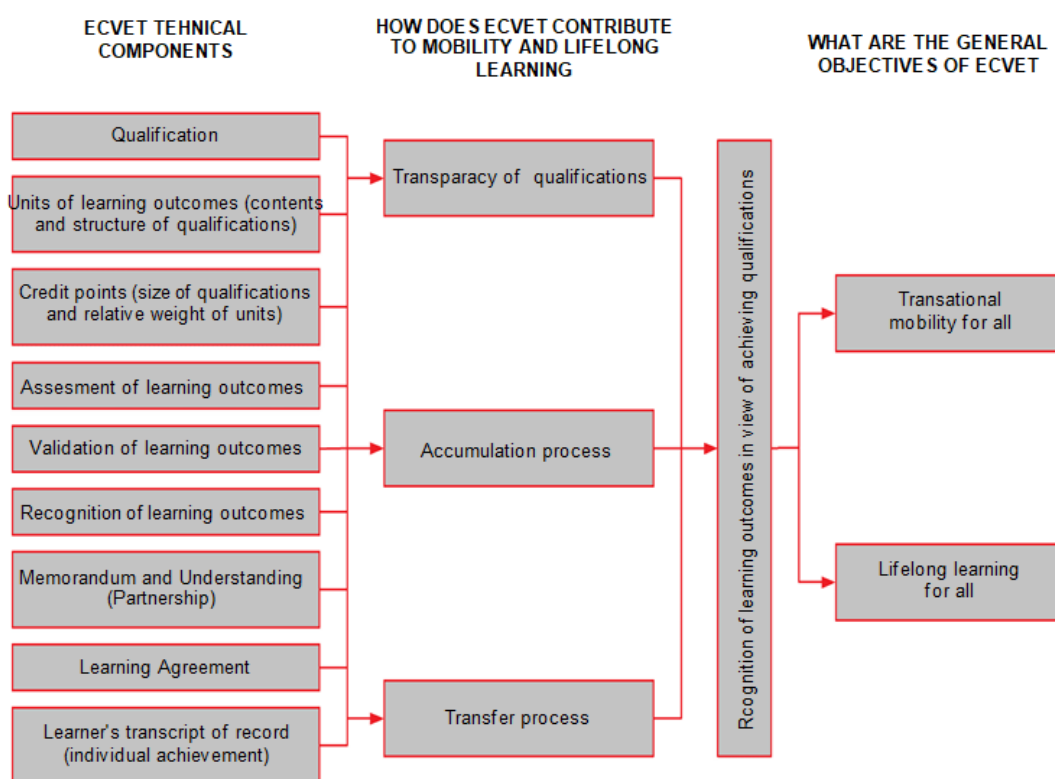
In ECVET, learning outcomes are used as a basis for credit transfer and accumulation. The different learning outcomes are grouped to create Units. Assessed learning outcomes constitute credit. Credit is the basis for enabling the transfer between learning contexts and for the accumulation of learning outcomes.

The following image illustrates the ECVET System starting from its main objectives that are to facilitate and encourage the mobility of students/learners/workers trough EU Member States and to make lifelong learning a tangible reality.

The consistent way to use credit transfer processes is an effective mechanism for increasing trust and transparency in the recognition and assessment of diverse learning contexts existing in different European Countries.

Regarding eu-WELD project, the following scheme represents how the eu-WELD partners has translated the ECVET process into the eu-WELD training course. This is an example for one unit. For the entire course, please refer to the project output entitled "eu_WELD_ECVET_ 3".

Description of Training Units N° 6: Specific norms of health and safety for welding processes

EQF Level	3	
ECVET Points - 2	*Allocation of ECVET points to a qualification is based on using a convention according to which 60 points are allocated to the learning outcomes expected to be achieved in a year of formal full time VET.* *More info: http://www.ecvet-secretariat.eu/de/system/files/documents/14/questions-answers-about-ecvet-21/04/2010.pdf* *http://www.anpcdefp.ro/userfiles/ecvet_qna_web_2.pdf*	
Hours	e-learning – 2h Self-Study – 4h	
Learning outcomes		
He/she is able to identify and apply the specific norms of health and safety for welding processes.		
KNOWLEDGE *(has knowledge and understanding of…)*	**SKILLS** *(is able to apply their knowledge to practical applications as…)*	**COMPETENCES** *(has professional competences based on responsibility and autonomy)*
He/she is able to: • Identify and use the norms of health and safety for welding processes	He/she is able to: • Apply and respect the health and safety norms for welding processes.	He/she is able to: • Select the necessary protective equipment for performing welding operations.

Figure 3: An example of requirements for knowledge, skills and competence in one learning unit

3.3 EQF Framework

The European Qualifications Framework for Lifelong Learning (EQF) is a common European reference framework that makes qualifications more decipherable and understandable across different countries and systems in Europe. This framework has two principal aims:

– to promote students' and workers' mobility between countries;

– to facilitate their lifelong learning.

By establishing a common reference point, the EQF indicates how learning outcomes may be combined from different settings (formal study or work) and from different countries and can thus contribute to reduce barriers between education and training providers (higher education and vocational education and training), which may operate in isolation from each other.

The structure of this framework is made up of 8 reference levels, based on learning outcomes (defined in terms of knowledge, skills and competences). The EQF shifts the focus from input (lengths of a learning experience, type of institution) to what a person holding a particular qualification actually knows and is able to do.

The levels span the full scale of qualifications, from basic (Level 1, for example school leaving certificates) to advanced (Level 8, for example Doctorates) levels. As an instrument for the promotion of lifelong learning, the EQF encompasses all levels of qualifications acquired in general, vocational as well as academic education and training. Additionally, the framework addresses qualifications acquired in initial and continuing education and training.

eu-WELD training course is positioned at EQF level 3.

Level	Knowledge	Skills	Competence
Level 3	Predominantly practical, life- and vocationally relevant knowledge with some theoretical basis, acquired primarily through the study of examples, imitation and practice in the context of a specific discipline.	Basic literacy and practical skills on a limited scale including the use of appropriate tools, methods and materials. Application of known solutions to resolve predictable problems on a limited scale. Ability to carry out transparent and standardised tasks.	Ability to acquire new knowledge and skills in a structured context with appropriate guidance. Ability to operate with limited autonomy in a predictable and structured context on the basis of simple verbal or written instructions. Taking a limited degree of responsibility.

Table 1: Knowledge, skills and competences corresponding to EQF level 3 (Source: https://www.nok.si/en)

4. eu-WELD METHODOLOGY FOR ASSESSMENT AND MONITORING

The methodology adopted for assessment and monitoring within the eu-WELD project, as anticipated in the previous paragraph, is the result of the implementation of the above principles. The following paragraph represents one of the main outputs that have been created within the eu-WELD project.

The validation consists of:

- Validation of prior learning for entering the training;

- Validation of learning outcomes on completion of the training;

- Assessment of performance of eu-WELD trainees during the online classroom training

5. eu-WELD METHODOLOGY FOR ASSESSMENT AND CERTIFICATION

5.1 Preliminary considerations and assumptions: For candidates who want to atend the eu-WED e-learning course, it is first necessary to check previous knowledge or learning. During the e-learning course, an ongoing assessment of the trainees' understanding of the materials is required. Finally, it is necessary the validation of learning outcomes on completion of the training as one of conditions for certification.

The training course consists from two parts, i.e.:

Part I (Technology): Basics of welding. The welding technology content is focused on materials, materials weldability, arc welding, application fields, health and safety;

Part II (Processes): Basics of fusion welding processes. The welding processes content is focused on fusion welding processes, principles of fusion welding processes, welding process parameters, equipment and consumables, advantages and disadvantages, special and advanced versions of welding processes.

Each of two parts consists from modules, which are associated with a list of learning outcomes, covering knowledge, skills and competences.

The procedure for assessment is intended to probe these learning outcomes, in compliance with CEDEFOP. Accomplishment of learning outcomes is associated with ECVET credits. The training course is provided online by the use of MLS software.

The overall architecture of the training course includes various steps:

- Registration;

- Access to training modules for Part I and Part II;

- Access to assessment modules for Part I and Part II and allocation of relevant ECVET credits;

- Issuing of certificate of competence;

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- Recertification every three years.

Candidates need to pass both assessment modules for Part I and Part II assessment. Minimum requirement for trainee to achieve eu-WELD qualification is consist of the two mandatory units and a minimum two skill units. Additional units can be added as endorsements to the minimum achieved certification level. The mandatory units from Part I:

a. General welding aspects

b. Specific norms of health and safety for welding processes

Skills units are all 6 from the Part II.

After successful completion of an assessment trainee will get certificate of qualification. This certificate will include a description of the competence profile and relevant ECVET credits. The overall procedure until issuing of a certificate of qualification will need to end within 6 months of registration. Should a candidate fail to complete her/his training course within 6 months, she/he will need to contact a supervisor, in order to apply for additional months, with a concise statement of her/his defense and an estimate of the number of additional months that she/he may need. The supervisor will normally decide to give up to 6 additional months, unless evidence of mala fides on the part of the candidate arises, within one week.

5.2Registration: On registration, trainees are provided with i) a clear description of the competence profile for welding technology expert, ii) the prerequisites that are assumed in the training course, which include notions of materials science originating from formal, non-formal or informal training in professional environment, good proficiency in Internet and English, iii) a clear statement of the outcome of the training course, i.e. a certificate of expertise and relevant ECVET credits.

Trainees are asked to fill in a registration form, according to the format that is available in LMS software application.

Upon registration, each trainee is given free access to Part I and Part II in one of a possible languages: English, Romanian, Hungarian and Slovenian. Learning materials are in the form of Power Point slides which content short theoretical description or scheme or picture. At the end of each module there are links to additional materials or video clips. This web

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platform also contains a description of the overall architecture of the training course, recommendations on an ideal sequence of modules, instructions and warnings on the procedures for assessment, etc. as well as an individual report on her / his advancement in the training course, which may be devised in the form of a table containing the scores for assessment modules for Part I and Part II.

5.3. *Training modules for Part I and Part II:* Upon registration, trainees are given access to all modules under Part I and Part II, simultaneously. Each module is introduced by a concise description of relevant prerequisites and learning outcomes, which will be structured in terms of knowledge, skills and competences and will serve for the trainees to self-assess their prior knowledge / learning outcomes before entering the procedure for assessment.

Each training module for Part I and Part II may be structured into units or chapters containing learning material, activities and tools for formative assessment.

5.3.1 *Learning material and activities of modules for Part I and Part II*: Learning material may be provided in the form of slides containing text, figures and external links to recommended readings. Activities may be proposed in the form of external links to readings or videos (with a preference for cases or expert opinions, with an estimated duration preferably not exceeding 10 min). At least two optional activities per module are ideal to enhance the interactive experience of the trainees. Each activity may be introduced by a short description, including an estimated duration.

5.3.2 *Tools for formative assessment within modules for Part I and Part II*: Each module is accompanied by one or more formative quizzes that are made of different number of questions on the relevant learning material and activities. The number of questions depends from number of learning units. Each question is devised as a multiple choice with 3 options and only one true. One of these questions may preferably relate to an activity and stimulate critical and/or creative thinking. For each question, a comment is provided to explain the right answer.

Trainees may be given a finite timespan, preferably 10 min, to submit their answers. After this submission, solutions and comments are displayed. These formative quizzes are repeatable without restraints. Authors are recommended to choose questions that are

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rather more specific and in-depth than those for the summative assessment, in order to ensure fairness and stimulate self-criticism.

5.4 Assessment modules for Part I and Part II and allocation of relevant ECVET credits: Final assessment is implemented at the level of each of Part I and Part II, by the use of quizzes that serve both as formative and summative tools.

Mandatory units are to be assessed by short answer written examination. Minimum pass mark for achievement is 70%.

Skills units are to be assessed by a short answer written examination and a practical task. Minimum pass mark for achievement of the written examination is 60%. Successful completion of practical task will be decided by the delivering organization and based on a minimum acceptable standard defined locally.

Endorsement units:

Technology units –Part 1: These units are to be assessed by a short written examination. Minimum pass mark for achievement is 50%.

Processes units – Part II: These units are to be assessed by a short answer written examination and a practical task. Minimum pass mark for achievement of the written examination will be 50%. Assessment criteria for practical element on the qualification will be based on international standard ISO 9606-1.

Trainees are given 30 min to submit their answers. After the first submission, solutions and comments are displayed together with a score that may be expressed as right answers or any equivalent representation. Exams are made to be accessible for subsequent trials after 24 hours of the first submission, until a total of three trials. However, from the second trial on, it is proposed that scores may be displayed without solutions nor comments, in order to restrict access to solutions and put the accent on the summative profile of this tool. All scores are recorded in individual reports.

In the case that the candidate fails in all three trials, she / he will need to contact a supervisor, in order to apply for additional trials, with a concise statement of her / his

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problems. The supervisor will normally decide to reset the assessment, unless evidence of mala fides on the part of the candidate arises, within one week.

Otherwise, as soon as the candidate succeeds in one trial, she / he is allocated relevant ECVET credits. She / he may still want to complete her / his three trials and improve her / his scores for formative scopes or leisure.

As a general guideline for authors for the preparation of the questions, *Figure 4* displays the probability of a trainee to pass a quiz after the first trial or after three trials, as a function of the success rate of each question. The probability to pass a quiz by chance after three trials remains around 0.1%. Conversely, for instance, if the success rate of each question is above 70 or 80%, more than about 50 or 80% of the trainees will respectively pass a quiz already after the first trial, which respectively reaches around 90 or 99% after the third trial.
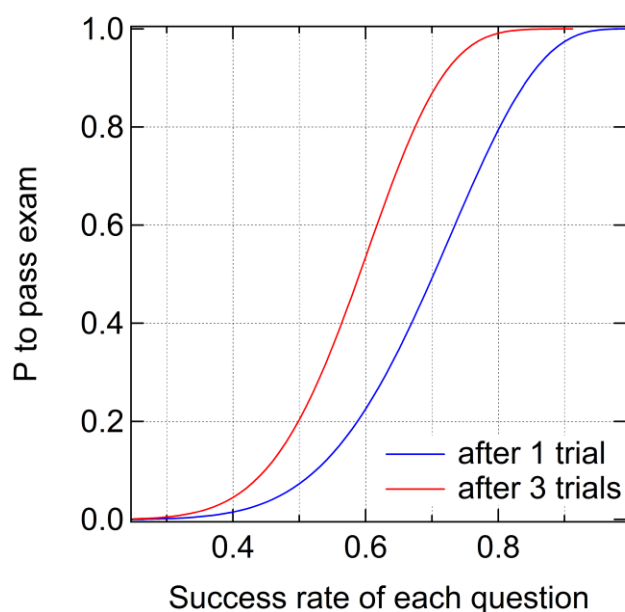
Figure 4: Probability to pass an exam as a function of the success rate of each question.

Allocation of ECVET credits for Part I and Part II: Upon completion of each of Part 1 and Part 2, relevant ECVET credits are allocated and recorded in individual reports.

5.5 *Certificate of expertise*: Upon completion of Part I, Part II, trainees are asked to contact a supervisor and provide evidence of their success, in order obtain a certificate of expertise.

This certificate includes a description of the competence profile and relevant ECVET credits.

5.6 Satisfaction questionnaire: Upon release of the certificate of expertise, candidates may be proposed to participate at a satisfaction questionnaire. This questionnaire will serve to audit the contents of the training course, in terms of choice and thoroughness of topics, the e-platform and the procedure for assessment.

In particular, trainees may be asked to rate the relevance, thoroughness and effectiveness of the various modules and to provide relevant comments on their breadth and depth of learning. Trainees may feel that certain modules did not improve their prior learning, both because the latter was too extensive or too poor to understand relevant contents. While the former case is not problematic in the context of a VET framework, the latter case may stimulate a redefinition of the prerequisites in the registration.

In addition, trainees may be asked to rate the e-platform and the procedure for assessment vs. the criteria from CEDEFOP, in view of additional refinement of the training course.

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6. Allocation of ECVET points

The allocation of ECVET points is distributed among the separate modules and parts, on the basis of their relative weight in the qualification. The allocation of ECVET points to a qualification is based on a convention that 60 points correspond to the learning outcomes that are expected from a year of formal full time VET. For a given qualification, a formal learning context is taken as a reference and, on the basis of 60 ECVET points per year of formal full time VET, the total number of ECVET points is assigned to that qualification.

From the total number of ECVET points allocated to a qualification, each module or part is allocated a number of ECVET points that reflects its relative weight within the qualification. The assessment of the relative weights of the units of learning outcomes is defined from the standpoint of the process of acquisition of knowledge and skills, in compliance with:
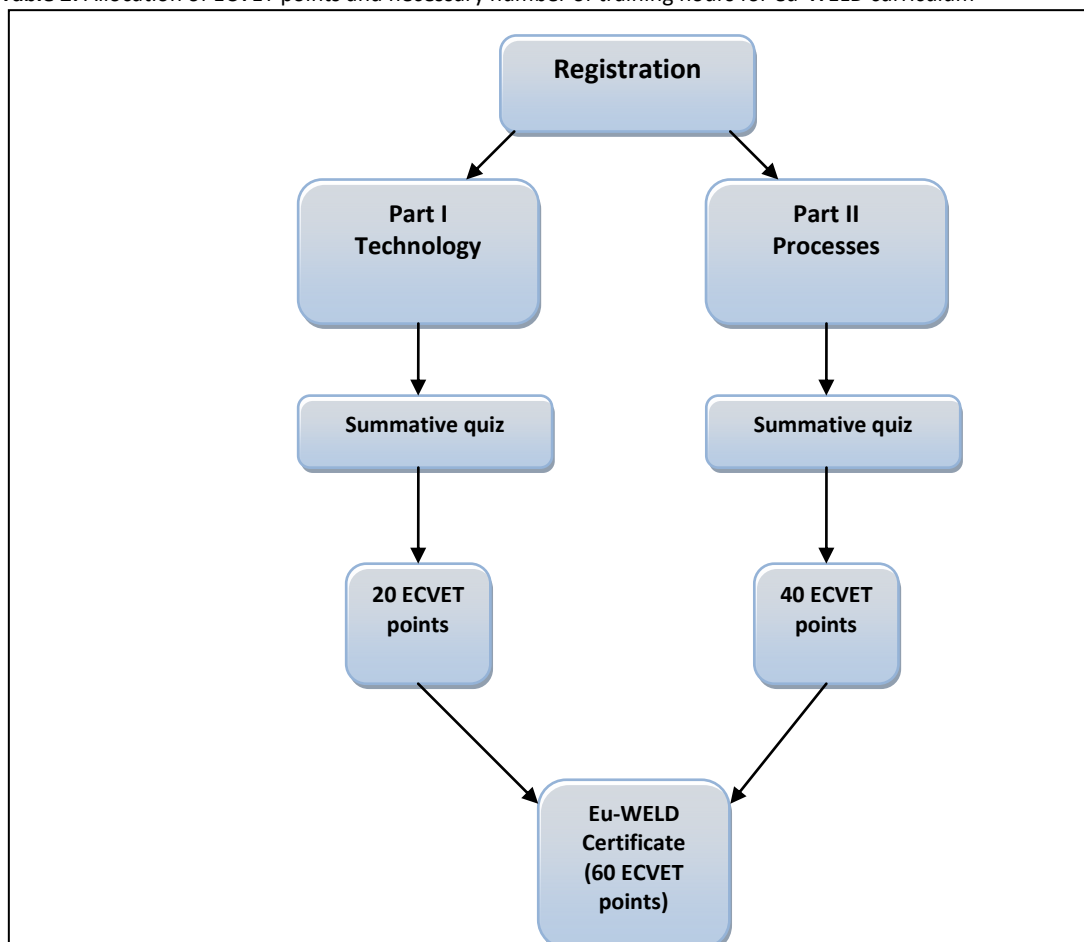
- training objectives for each unit in the context of the whole qualification, scope and volume of the general and specific knowledge and skills;

- complexity of methods, procedures and notional learning time for the achievement of the results expected for each unit.

In the eu-WELD course, ECVET points are assigned after completion of a part of the course.

Upon completion of each of Part I and Part II, relevant ECVET credits are allocated and recorded in individual reports. 20 ECVET points are awarded for Part I and 40 ECVET points for Part 2, which amounts to 60 ECVET points for the basic competence profile. The trainee can reach necessary ECVET points by e-learning hours and self-study hours. Part I contains 56 hours (26 e-learning and 30 self-study) and Part II contains 24 hours. It means that the trainee must complete a total of 80 hours of training to earn 60 ECVET points. The structure of the eu-WELD course is represented in Table 2 and Figure 4:

		Points	e-learning	Self-Study	TOTAL
	PART I (TECHNOLOGY): BASICS OF WELDING TECHNOLOGY	**20**	**26**	**30**	**56**
1	*General Welding Aspects*	2	6	6	12
2	*Materials used in fusion welding*	4	4	4	8
3	*Materials Weldability And Heat Treatment*	4	4	4	8
4	*Quality Assurance And Qualification In Welding*	4	8	8	16
5	*Technical Drawing Used In Welding Field*	4	2	4	6
6	*Specific Norms Of Health And Safety For Welding Processes*	2	2	4	6
	PART II (PROCESSES): BASICS OF FUSION WELDING PROCESSES	**40**	**14**	**10**	**24**
7	*Oxy-Gas Welding*	4	2	2	4
8	*Manual Metal Arc Welding Process*	10	2	2	4
9	*TIG Welding*	10	4	2	6
10	*MIG/MAG/FCAW Welding*	10	4	2	6
11	*Submerged-Arc Welding*	3	1	1	2
12	*Laser Welding; Electron Beam Welding; Plasma Welding*	3	1	1	2
		60	**40**	**40**	**80**

Table 2: Allocation of ECVET points and necessary number of training hours for eu-WELD curriculum

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Figure 5: Structure of the eu-WELD course: basic competence profile

7. GLOSSARY

Assessment of learning outcomes

The process of appraising knowledge, skills and/or competences of an individual against predefined criteria, specifying learning methods and expectations. Assessment is typically followed by validation and certification

Competence

Competence is the proven ability to use knowledge, skills and other abilities to perform a function against a given standard in work or study situations and in professional and/or personal development. In the EQF, 'competence' is described in terms of responsibility and autonomy.

Certificate

An official document, issued by an awarding body, which records the achievements of an individual following a standard assessment procedure.

Certification of learning outcomes

The process of formally attesting that knowledge, skills and/or competences acquired by an individual have been assessed and validated by a competent body against a predefined standard. Certification results in the issue of a certificate, diploma or title.

Credits

Credits are one of the tools designed to facilitate the implementation of credit transfer systems at national and European level. They are used by authorities, education and training providers, competent bodies and learners to support arrangements for accumulation and recognition of learning outcomes towards a qualification and for Trans-National mobility. Credits [credit points] are allocated to the qualifications and to the units of which a qualification is made up.

Formal learning

Learning that occurs in an organized and structured environment (e.g. in an education or training institution or on the job) and is explicitly designated as learning (in terms of objectives, time or resources). Formal learning is intentional from the learner's point of view. It typically leads to validation and certification.

Informal learning

Learning resulting from daily activities related to work, family or leisure. It is not organized or structured in terms of objectives, time or learning support. Informal learning is mostly unintentional from the learner's perspective.

Key competences

The sum of skills (basic skills and new basic skills) needed to develop in contemporary knowledge society. The European Commission sets out the eight key competences:

- communication in the mother tongue;
- communication in foreign languages;
- competences in math's, science and technology;
- digital competence;
- learning to learn;
- interpersonal, intercultural and social competences, and civic
- competence;
- entrepreneurship;
- cultural expression.

Knowledge

Knowledge is the outcome of the collection and assimilation of information through learning. In the EQF, knowledge is described as theoretical and/or factual.

Learning

A process by which an individual assimilates information, ideas and values and thus acquires knowledge, know-how, skills and/or competences

Lifelong learning

All learning activity undertaken throughout life, and which results in improving knowledge, know- how, skills competences and/or qualifications for personal, social and/or professional reasons.

Life-wide learning

Learning, either formal, non- formal or informal, that takes place across the full range of life activities (personal, social or professional) and at any stage.

Lesson plan

A detailed guide for teaching a lesson

Non formal learning

Learning which is embedded in planned activities not always explicitly designated as learning (in terms of learning objectives, learning time or learning support), but which contain an important learning element. Non formal learning is intentional from the learner's point of view.

Qualification

The term qualification covers different aspects:

- formal qualification: the formal outcome (certificate, diploma or title) of an assessment and validation process which is obtained when a competent body determines that an individual has achieved learning outcomes to given standards and/or possesses the necessary competence to do a job in a specific area of work. A qualification confers official recognition of the value of learning outcomes in the labor market and in education and training. A qualification can be a legal entitlement to practice a trade (OECD);

- job requirements: the knowledge, aptitudes and skills required to perform the specific tasks attached to a particular work position (ILO);

- personal attributes: the sum of knowledge, know-how, skills and/or competences acquired by an individual in formal, non-formal and/or informal settings.

Recognition of learning outcomes

Formal recognition: the process of granting official status to skills and competences:

- through the award of qualifications (certificates, diploma or titles);

- through the grant of equivalence, credit units or waivers, validation of gained skills and/or competences;

    and/or

- social recognition: the acknowledgement of the value of skills and/or competences by economic and social stakeholders.

Skill

A personal faculty required to do something or get something done. Skills are of a general nature. For example leadership is a skill, but to give instructions to subordinates is the result of applying leadership (together with other skills) to a job task and not a skill in itself.

Standard

Something considered by an authority or by general consent as a basis of comparison (source: Dictionary.com)

Validation

A process where a competent body assesses and officially recognizes that a person, a person's activity or one or more personal attributes comply with a predefined standard.

Validation Framework

A set of rules for validating the outcomes of not formal and informal learning.

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