ENEX Project

Erasmus+ 2014-1-DE02-KA20-001635

O4-A9
Guidelines for performance assessment and monitoring the performance of trainees

Authors
CNR-IFAC - ASEV

This project has been funded with support from the European Commission.
This publication reflects the views only of the author, and the Commission cannot be held responsible for any use which may be made of the information contained therein.

Table of Contents

1. INTRODUCTION
    a) The ENEX project
    b) The ENEX objectives
    c) The ENEX professional profile
    d) The ENEX course

2. AIM OF THESE GUIDELINES

3. EUROPEAN GUIDELINES FOR VALIDATING NON-FORMAL AND INFORMAL LEARNING
    a) CEDEFOP
    b) ECVET
    c) EQF

4. ENEX METHODOLOGY FOR ASSESSMENT AND MONITORING
    a) Monitoring
    b) Assessment – “Methodology for assessment”
    c) ECVET allocation
    d) Certification

GLOSSARY

REFERENCES

1. INTRODUCTION

a. The ENEX project

The ENEX Project intends to develop a short-cycle vocational qualification at graduate level, in accordance with the European Qualifications Framework (EQF), focused on industrial applications of nanotechnology. Nanotechnology is a strongly emerging and quickly growing area of research and marketable outcomes. As a consequence of this rapidity, companies dealing with nanotechnology and/or technology transfer organizations working as intermediaries between research and industry, require competent employees.

The ENEX 'Expert in Nanotechnology Exploitation' is an answer to this increasing demand, as well as the ideal interface between laboratories and researchers developing nanotechnologies and the industry and health sector exploiting their developments. Since nanotechnology holds an interdisciplinary nature and entails a broad range of applications, the ENEX must have in-depth knowledge of the main concepts of nanotechnology, including material properties and processing techniques, as well as competences to assess and manage the process from research to innovation, in order to make the right decisions at strategic level ('do the right things') as well as at operational level ('do things right').

The ENEX project aims to develop a sustainable platform to complement knowledge, skills and competences in the fields of nanotechnology and innovation management to key staff of companies engaging in nanotechnology or related industry, but also to researchers, intermediaries and other stakeholders of the research to market process in nanotechnology.

The items produced by the ENEX partners to reach these objectives are the main outputs of the ENEX project, which are the following:

• **Competence profile** of the 'Expert in Nanotechnology Exploitation - ENEX', structured according to ECVET guidelines,

• **2 curricula** combining theoretical and practice-oriented lessons with methodologies as well as case scenarios, the one on **fundamentals of nanotechnology** (materials and processing), the other on **assessing and managing innovation processes**,

• **E-learning course** merging both curricula into a new interdisciplinary and innovative pedagogical concept,

• **Methodologies and guidelines for the validation, assessment and monitoring** of the performance of the ENEX trainees according to European standards (CEDEFOP 2009).

The ENEX project addresses the following **target groups**:

- Companies, in particular SMEs, engaging in nanotechnology or related industries, as well as relevant key staff in those industries, e.g. project managers, business development managers, innovation managers;
- Post-tertiary graduates in the fields of natural sciences (physics, chemistry, biology), medicine, engineering sciences;
- Transfer Offices / Industrial Liaison Offices of (Technical) Universities, Strategic Divisions / Exploitation Departments of Research and Technology Centres (RTC), as well as centre managers of RTCs, individual scientists and researchers, innovation and technology transfer professionals: consultants, coaches, mentors, analysts etc.;
- Other stakeholders: VET providers, regional development agencies, political decision makers, chambers of commerce and industry, industrial associations, foundations relating to nanotechnology, capital investors, patent attorneys etc.

b. The ENEX professional profile

In order to allow the ENEX consortium to establish the e-learning course, the first step has been the definition of the ENEX professional profile. This document includes a description of the ENEX occupational profile and has been devised and structured according to ECVET guidelines: it is the answer to the question “what knowledge, skills and competences the ENEX should have?”.

The methodology that was implemented to define the ENEX professional profile has been a comprehensive study carried out in all regions of ENEX partners (Italy, Germany, the Netherlands, Poland and Romania). The study included:

- an online survey among companies (157 parties involved) collecting quantitative information on the level of engagement of the main target groups in nanotechnology and innovation management and on potential qualification needs in these areas;

- a qualitative analysis based on in-depth interviews with managers / experts responsible for managing innovation processes in their respective companies or organizations (at least 5 interviews per region for a total of 25 interviews), to identify key competences of the ENEX and to define theoretical knowledge and practical skills the ENEX must have after completion of the training and certification;

- feedback from two separate face-to-face pilot training courses on key topics of nanotechnology and innovation management;

- an accompanying desk research of available vocational profiles and training offers in the fields addressed in the ENEX project.

The result of the study is a set of key subject areas/competence units that define the ENEX training course. In particular:

1. Nanotechnology (NT):

- Introduction to nanotechnological innovation;
- Nanomaterials;
- Processes & fabrication;
- Characterization;

Major NT application areas:

- Nanobiotechnology & Medical applications;
- Nanoelectronics & Nano-optics;
- Energy

2. Innovation management (IM):

- Introduction to innovation management;
- Technology commercialization;
- Economic value assessment in the nanotechnology context;
- Innovation marketing;
- Intellectual property;
- Project management in the nanotechnology context;
- Financing of innovation management in nanotechnology;
- Corporate and academic entrepreneurship.

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

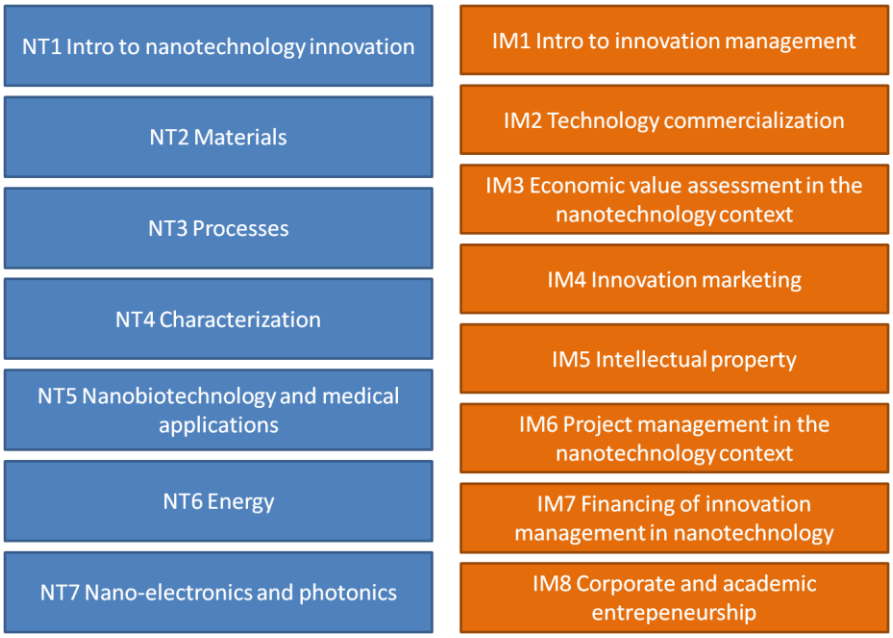
c. The ENEX e-learning course

The ENEX e-learning course is based on the lesson plans mentioned above, 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 nanotechnology and innovation management. Before certification, summative assessment is implemented though a randomized sequence of multiple-choice questions.

The training course comprises a total of 15 modules containing several learning units, i.e. 7 modules on nanotechnology and 8 modules on innovation management.

The general structure of the modules is shown in the figure.



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

- 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 an ENEX trainee should know, understand and be able to do on completion of the learning process) related to each field of competence identified in the ENEX competence profile.

The ENEX e-learning course is available under the open license platform Moodle to everybody who is interested in this advanced training. Potential trainees need to register and self-assess their level of entry qualification against precise prerequisites, before entering the training.

2. AIM OF THESE GUIDELINES

The ENEX project has, among its major objectives, to develop a methodology for assessing and monitoring the achievements of the trainees, so to give transparency to the validation instruments implemented and to make the project sustainable.

These guidelines provide details and instructions on the methodologies for the validation of competences and for the assessment of the performances of ENEX 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 ENEX trainees has been structured according to European standards (CEDEFOP 2009) and allows for the assessment and monitoring, transfer, validation and recognition of learning outcome (based on ECVET points).

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)

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 need 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.

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 based on the qualifications standards and regulations existing in the participating countries.

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.

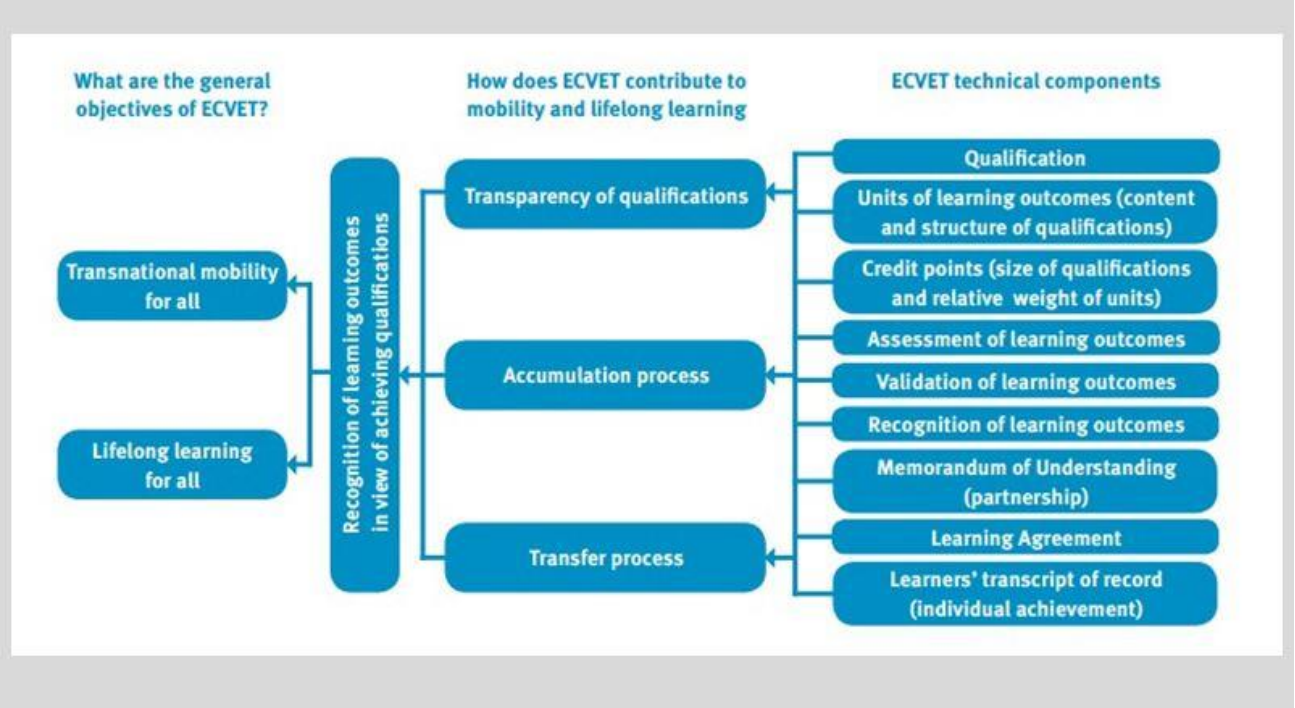


Table 1: Source https://yourcompetences.com/en/toolbox-uk/pendant-la-realisation-2/test/

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.

Coming back to the ENEX project, the following scheme represents how the ENEX consortium has translated the ECVET process into the ENEX training course. This is an example for one unit. For the entire course, please refer to the project output entitled “ENEX Competence Profile”.

	Competence unit / Learning outcome	**Knowledge** The trainee should know about …	**Skills** The trainee should (be able to) …	**Competences** The trainee should …	**Hours**
Innovation management					
IM 1	Introduction to innovation management	1. Basic concepts of innovation management. 2. Types of innovation in organizations. 3. Characteristics of innovation processes.	1. Know the basic concepts of innovation management including creativity / idea generation, technology commercialisation, technology transfer etc. 2. Know about the various types of innovation as a source of competitive advantage of companies. 3. Know about various approaches to innovation processes, including technology push / market pull, interactive and non-linear processes, value chain and the nanotechnology research-to-market (R2M) process, etc.	1. Develop a critical understanding of the complexity and heterogeneity of research-to-market processes and innovation management. 2. Build capabilities in interdisciplinary and analytical thinking.	4

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.

ENEX training course is positioned at EQF level 7.

Level	Knowledge	Skills	Competence
Level 7	• Highly specialised knowledge, some of which is at the forefront of knowledge in a field of work or study, as the basis for original thinking and/or research • Critical awareness of knowledge issues in a field and at the interface between different fields	Specialised problem-solving skills required in research and/or innovation in order to develop new knowledge and procedures and to integrate knowledge from different fields	Manage and transform work or study contexts that are complex, unpredictable and require new strategic approaches; take responsibility for contributing to professional knowledge and practice and/or for reviewing the strategic performance of teams

Table 2: Knowledge, skills and competences corresponding to EQF level 7 (Source: EQF Recommendation, 2008)

4. ENEX METHODOLOGY FOR ASSESSMENT AND MONITORING

The methodology adopted for assessment and monitoring within the ENEX 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 ENEX project.

The validation comprises:

- Assessment of prior learning for entering the training
- Assessment of performances of trainees during the training
- Validation of learning outcomes on completion of the training

5. ENEX METHODOLOGY FOR ASSESSMENT

1. *Preliminary considerations and assumptions*: This methodology rests on the assumption that the ENEX competence profile may be articulated into a basic competence profile and an advanced competence profile. The latter is the same as the former, but for an additional ability to develop an interdisciplinary case.

   The training course is broken into three parts, i.e.:

   Part 1: Nanotechnology. This part is common both to the basic and advanced competence profile;

   Part 2: Innovation Management. This part is common both to the basic and advanced competence profile;

   Optional Part 3: Interdisciplinary Case Study. This part belongs to the advanced competence profile only.

   In turn, each part is broken into 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 using Moodle e-platform.

The overall architecture of the training course includes various steps:

- Registration;
- Access to training modules for Part 1 and Part 2;
- Access to assessment modules for Part 1 and Part 2 and allocation of relevant ECVET credits;
- Optionally, paid access and expert assessment for Part 3 and allocation of relevant ECVET credits;
- Release of certificate of expertise;
- Optionally, access to satisfaction questionnaire;

Candidates need to pass both assessment modules for Part 1 and Part 2 and, optionally, paid expert assessment for Part 3, before achievement of a certificate of expertise. This certificate will include a description of the competence profile and relevant ECVET credits, which will differ whether Part 3 has been opted for (advanced competence profile or basic competence profile, respectively).

The overall procedure until release of a certificate of expertise 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, 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.

2. *Registration*: On registration, trainees are provided with i) a clear description of the basic competence profile and the advanced competence profile, 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 an academic or 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, which will differ whether or not Part 3 is opted for (advanced competence profile or basic competence profile, respectively).

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

   Upon registration, each trainee is given free access to Part 1 and Part 2 and a repository containing general annexes, including 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 1 and Part 2 and the status for Part 3 (not opted for, not submitted, under expert assessment, passed), for instance. Optionally, each trainee may be given paid access to Part 3.

Part	1st trial score	2nd trial score	3rd trial score	ECVET pts.
1 Nanotechnology	20% (not passed)	**82% (passed)**	50% (not passed)	**3**
2 Innovation Management	**90% (passed)**	-	-	**3**
3 Interdisciplinary Case Study	Not opted for			

Table 3: Example of summary table for the scores of all modules

3. *Training modules for Part 1 and Part 2*: Upon registration, trainees are given access to all modules under Part 1 and Part 2, in parallel. 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 1 and Part 2 may be structured into units or chapters containing learning material, activities and tools for formative assessment.

3.1. *Learning material and activities of modules for Part 1 and Part 2*: 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) and / or discussions among trainees via the internal chat. 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.

3.2. *Tools for formative assessment within modules for Part 1 and Part 2*: Each module is accompanied by one or more formative quizzes that are made of 3 to 4 questions on the relevant learning material and activities. Each question is devised as a multiple choice with 3 to 4 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 rather more specific and in-depth than those for the summative assessment, to ensure fairness and stimulate self-criticism.

4. *Assessment modules for Part 1 and Part 2 and allocation of relevant ECVET credits*: Final assessment is implemented at the level of each of Part 1 and Part 2, using quizzes that serve both as formative and summative tools. Each randomized quiz is made of 12 questions that are picked at random from a pool of no less than 36. Each question is devised as a multiple choice with 4 options and only one true. Quizzes are passed with no less than 75% of right answers, i.e. 9/12. The pool of questions will cover the key learning outcomes of the modules of the relevant part. It is recommended that at least one question be referable to each module. However, at least 10% of the questions will refer to cases that are not included in the learning material and more questions may span over more modules, with the aim to assess the depth of knowledge and creative thinking of the trainees. **For each question, a comment is provided to explain the right answer**.

   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 / 12 * 100% or any equivalent representation. Quizzes 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, 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, to apply for additional trials, with a concise statement of her / his 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 1** 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.

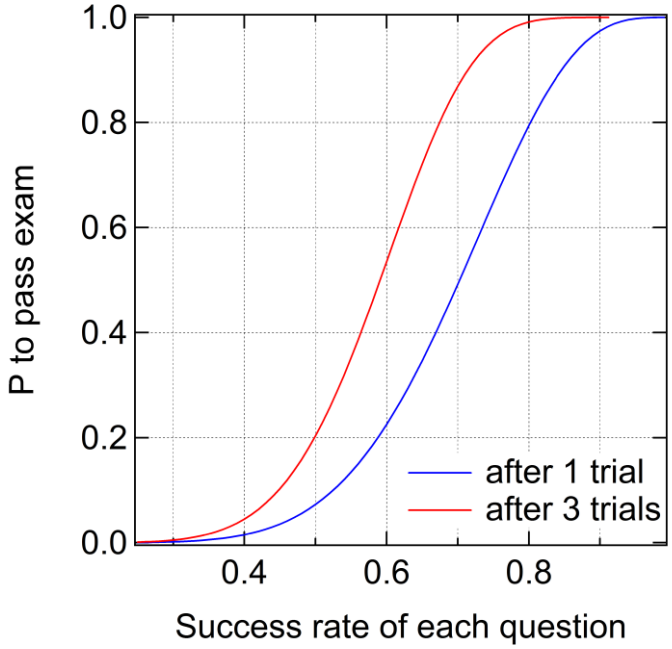


Figure 1: Probability to pass an exam as a function of the success rate of each question.

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

5. *Optional paid access and expert assessment for Part 3 and allocation of relevant ECVET credits*: Case studies are used as a formative and summative tool to let trainees challenge their ability to practice their learning outcomes from Part 1 and Part 2 and analyze a case of their choice from an interdisciplinary perspective, i.e. covering aspects of nanotechnology and innovation management, with an emphasis on their relationship.

   Examples of possible cases include marketable applications, marketable materials, marketable devices, patents, commercial products, regulatory issues, etc., which may be proposed by candidates.

   Upon paid registration for Part 3, trainees are given access to a repository containing general instructions and suggestions to develop and submit an assay on a case of their choice. General instructions include the definition of the scope of the case study. Templates may serve as an outline for the essay and shall be broken into subsections with character limits, etc. Character limits may serve to contain the workload that is imposed on the expert who will undertake the formative and summative assessment. Criteria and standards shall be illustrated using bad and good examples.

Approx within 10 days of the submission of the essay, the ENEX Consortium appoints an expert to undertake its formative and summative assessment.

5.1. *Expert assessment for Part 3*: The essay is assessed against relevant criteria by an expert in nanotechnology exploitation, who provides for constructive criticism, preferably by email, and stimulate an iterative process until all relevant standards are met. The overall procedure is expected to come to an end within about 30 days of appointment.

5.2. *Allocation of ECVET credits for Part 3*: Upon completion of Part 3, relevant ECVET credits are allocated and recorded in individual reports.

6. *Certificate of expertise*: Upon completion of Part 1, Part 2 and, optionally, Part 3, 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, which differs whether Part 3 has been opted for (advanced competence profile or basic competence profile, respectively).

7. *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.

   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.

6. ALLOCATION OF ECVET POINTS

The allocation of ECVET points is distributed among the separate modules and parts, based on 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, based on 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 ENEX course, ECVET points are assigned after completion of a part of the course.

Upon completion of each of Part 1 and Part 2, relevant ECVET credits are allocated and recorded in individual reports. 3 ECVET points are awarded for each of Part 1 and Part 2, **which amounts to 6 ECVET points for the basic competence profile**. It is recommended that Part 3 may correspond to another 3 to 6 ECVET points, **so that the advanced competence profile shall correspond to 9 to 12 ECVET points**.

The structure of the ENEX course is represented in Figure 2, in terms of ECVET points, for the basic competence profile.

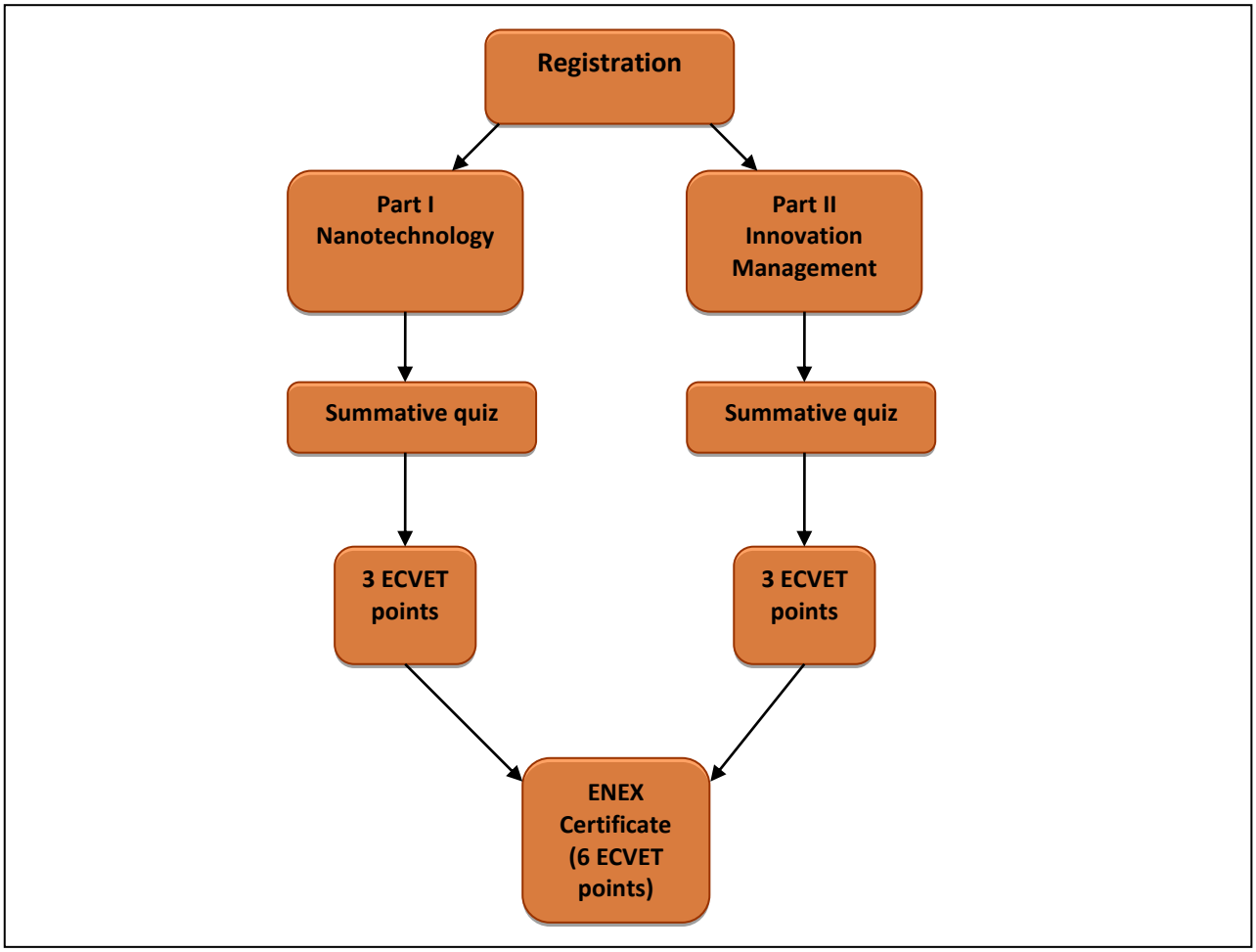


Figure 2: Structure of the ENEX course: basic competence profile

7. Final certificate

The pass mark for the final quizzes for Part 1 and Part 2 is 75%, i.e. 9 correct answers out of 12 questions. The essay for Part 3 is subject to expert assessment against relevant criteria and passed upon expert approval. Upon completion of Part 1, Part 2 and, optionally, Part 3, 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, which differs whether Part 3 has been opted for (advanced competence profile or basic competence profile, respectively).

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 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.

REFERENCES

CEDEFOP European Centre for the Development of Vocational Training - European Guidelines for validating non-formal and informal learning [Report]. - Luxembourg: Office for Official Publications of the European Communities, 2009.

IMPROVE Improving Validation of Not-formal Learning in European Career Guidance Practioners - "Guide for Validation of Career Guidance Practioners' Competence [Report]". - 2011.

Vocational Education and Training (VET) Credit Conversion System Manual for the Conversion of qualifications into the ECVET System - http://eupa.org.mt/wp-content/uploads/2015/07/ECVET-Conversion-Manual.pdf

ECVET TOOLKIT http://www.ecvet-toolkit.eu/ecvet-toolkit/ecvet-toolkit

EUVETSUPPORT – Guidelines for ECVET and Prior learning Assessment and recognition (PLAR) application in VET praxis (2013)

http://www.ecvet-team.eu/de/system/files/documents/14/questions-answers-about-ecvet-21/04/2010.pdf

The European Credit System for Vocational Education and Training ECVET – "GET TO KNOW ECVET BETTER Questions and Answers" February 2011

ETM Project – "Methodology for the Expertise Check up of the TTM" – June 2013