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VIA UNIVERSITY MICRO-CREDENTIALS
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B-Green-ED Micro-credential Strategy

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INTRODUCTION

The European Commission has recognized the key role standards play on the internal market and internationally, for boosting the competitiveness of the economy and applying innovations, however, the impact of standards is highly dependent on the level of knowledge among the workforce.

Therefore, the project consortium chose to address as a main priority environment and fight against climate change as the project envisages elaboration of training materials for higher education courses related to standards in the areas of management systems and environmental standards and support for the university lecturers for producing innovative micro-credentials.

The project contributes also to two additional priorities in the area of HE – Stimulating innovative learning and teaching practices and supporting digital and green capabilities of the higher education sector. The project encourages an innovative method of teaching at universities by using digital technologies. The training materials and the training will be performed online, some of the digital materials will become open educational resources, which could be further used by other universities or interested educational institutions.

The main objective of the project is to boost the European green economy and climate neutrality through the development of innovative HE practices related to the implementation of micro-credentials designed in cooperation with European standards bodies that meet the market needs and facilitate the provision of flexible, accessible, and inclusive education in relevant industry/sector standards that support the transition to a green and digital economy.

In the framework of this aim the achievement of the following objectives has been foreseen:

- encouragement of innovation in the provision of flexible training opportunities that enhance the existing HE degree programs via the design and development of curricula for micro-credential courses aiming to overcome skills mismatches related to management, environmental and green standards, and standardization;
- supporting the inclusive and resilient remote high-quality learning and teaching through the establishment of a digital learning platform that provides a tailored virtual learning environment that facilitates access to HE, including for those from disadvantaged backgrounds;
- fostering the usage of digital technologies and e-learning standards for the development of high-quality interoperable and re-usable learning content and educational tools;
- strengthening the relation academia-industry to provide more inclusive curricula and more flexible learning pathways that meet market needs with responsiveness and agility.

Micro-Credential Strategy

1. Introduction

In recent years, a trend towards diversification of education provision by higher education institutions can be observed. In addition to traditional bachelor, master or doctoral degree programmes, various new short, more flexible, learner-centered forms of education and training that fit the needs of a wider range of learners have been offered. Also, other public and private providers offer different forms of short-term education and training targeting various groups of learners.

This is the response to the changes on the labor market, where a growing number of adults, with a higher education degree or lower, will have to reskill and upskill to fill the gap between the competencies acquired through initial formal learning and emerging knowledge and skills needed. In particular, the COVID-19 crisis has resulted in a substantial increase in demand for various forms of flexible on-line continuing education and training offered by higher education institutions and other providers [D.Orr et al, 2020].

These alternative forms of learning are offered under different names [MICROBOL, 2021], leading to confusion and problems with their understanding, recognition and appreciation by prospective learners and employers. This has resulted in an effort, in particular in Europe, to address this issue and develop measures that would allow interested stakeholders to better understand and recognize the value of various forms of short education and training programmes and the resulting credentials, for which the term "micro-credentials" is currently increasingly commonly used.

Although the development of various forms of micro-credentials is primarily market-driven, they are beneficial not only for professionals who would like to update their competences or acquire new competences that would give them a better position on the labor market. Micro-credentials, especially those offered by higher education institutions, bring benefits to students enrolled in traditional degree programmes, complementing or supplementing these programmes, in particular through enhancing students' opportunities to develop transferable skills useful for their future careers.

Micro-credentials also create new opportunities for various groups of non-traditional students – life-long learners. They address the needs of those who would like to enhance their personal competencies and also create pathways into tertiary education for various groups of learners from disadvantaged backgrounds. With the demographic changes observed in Europe, it is of a

key importance to create the education offer for elderly people that would allow for active ageing in the digital age. Therefore, offering various short-term forms of learning certified by micro-credentials can be seen as the essential part of the "third mission" of universities and their social responsibility.

Micro-credentials have the high potential of social impact. They allow people to maintain and acquire various competences that enable them to participate fully in society, ensure their personal, social and professional empowerment, and thereby create better lives and better opportunities for all. Therefore, micro-credentials are high on the agenda of various political initiatives taking place at the European level. This is reflected in several documents of the European Commission, including:

- the communication on achieving the European Education Area by 2025 (European Commission, 2020)
- the updated Digital Education Action plan (European Commission, 2020)
- New Skills Agenda for Europe (European Commission, 2020)

In this context, it is expected that significant progress will be made as a result of the European Universities Initiative with European Universities developing and testing micro-credentials, thereby paving the way for other higher education institutions to follow. In fact, several European Universities alliances, including the European Consortium of Innovative Universities (ECIU) and Young Universities for the Future of Europe (YUFE), have already reported some achievements in this area.

High expectations regarding the contribution of European Universities to the development of micro-credentials have been emphasized in a recent European Commission document for the meeting with rectors of European Universities (European Commission, 2021), where one of its six sections is devoted to the European approach to micro-credentials.

2.- The concept of micro-credential

As stated in many reports, a shared and transparent definition of micro-credentials is the key to their development and uptake. Many different definitions of micro-credentials have been proposed. The majority of them state that a micro-credential is a small volume of learning certified by a credential.

In the report of the European Commission Consultation Group [2020], a micro-credential is defined in the following way:

> *"A micro-credential is a proof of the learning outcomes that a learner has acquired following a short learning experience. These learning outcomes have been assessed against transparent standards.*

> *The proof is contained in a certified document that lists the name of the holder, the achieved learning outcomes, the assessment method, the awarding body and, where applicable, the qualifications framework level and the credits gained. Micro-credentials are owned by the learner, can be shared, are portable and may be combined into larger credentials or qualifications. They are underpinned by quality assurance following agreed standards".*

An essential part of the micro-credential's framework is the micro-credential template. In this sense, the proposed EU standard for constitutive elements of micro-credentials, introduced by the European Commission Consultation Group, essentially defines elements of a micro-credential template.

3.- Planning and launching micro-credentials inside the B-GREEN-ED project

The information structure in the micro-credentials template inside the B-GREEN-ED project follows the EU standard for constitutive elements of micro-credentials proposed by [European Commission Consultation Group, 2020]. According to this standard, a micro-credential (document obtained by a person who is awarded that micro-credential) contains the following elements:

1. Identification of the learner

2. Title of the micro-credential

3. Country/region of the issuer

4. Awarding body

5. Date of issuing

6. Notional workload needed to achieve the learning outcomes (in ECTS, wherever possible)

7. Level (and cycle, if applicable) of the learning experience leading to the micro-credential (EQF and/or national qualifications framework; Overarching Framework of Qualifications of the European Education Area)

8. Learning outcomes

9. Form of participation in the learning activity (online, onsite or blended, volunteering, work experience)

10. Prerequisites* needed to enroll in the learning activity

11. Type of assessment (testing, application of a skill, portfolio, recognition of prior learning, etc.)

12. Supervision and identity verification during assessment* (unsupervised with no identity verification, supervised with no identity verification, supervised online or onsite with identity verification)

13. Quality assurance of the credential and, where relevant, of the learning content

14. Integration/stackability options

Some of these elements, marked with an asterisk (*), are optional.

During the B-GREEN-ED project, all these elements have been described and interpreted in the context of the prior micro-credential's framework.

4.- Implementing micro-credentials inside the B-GREEN-ED project

During the B-GREEN-ED project, 12 micro-credentials have been implemented (Table 1):

Table 1.- List of micro-credentials implemented in the B-GREEN-ED project

Country	Partner	MC Course Name
Bulgaria	BFU	1st Course (BFU) - Circular Economy, Business Models and Green Standards
		2nd Course (BFU) - Electronics and Communication of Renewable Energy Sources
		3rd Course (BFU) - Engineering and Exploitation of Energy Systems
Lithuania	MRU	1st Course (MRU) -Andragogical technologies and safe environment
		2nd Course (MRU) - Social responsibility and career management
		3rd Course (MRU) - Social responsibility in family work
Romania	USVT	1st Course (USVT) - Risk Management in Bioeconomy course
		2nd Course (USVT) - Carbon footprint assessment
		3rd Course (USVT)- Biomass and Good Practices in the Management of Degraded Lands and Desertification
Spain	UPV	1st Course (UPV) - Quality Management Systems standards
		2nd Course (UPV) - Environmental Management Systems standards
		3rd Course (UPV) - Waste Management and Industrial Pollution Control Standards

For each one of the micro-credentials, the following information has been recorded:

1. Identification of the learner. The learner is identified through his/her personal data:
   - first and last name(s),
   - date of birth,
   - nationality,
   - student identification number or code (if available)

2. Title of the micro-credential

3. Country of the issuer

4. Awarding body:

Micro-credentials are awarded by individual universities, members of the B-GREEN-ED project. This means that the certification document is signed by an eligible person from the corresponding university and with the logo of that university

5. Date of issuing

The date of issuing a micro-credential (a document obtained by the learner who is awarded that micro-credential) should correspond to the date when all requirements associated with that micro-credential are satisfied by the learner.

6. Workload needed to achieve the learning outcomes

During the B-GREEN-ED project, micro-credentials are assigned ECTS points. A micro-credential should confirm some essential/meaningful volume of learning outcomes so that it would be worth being included it in the person's CV/portfolio.

7. Level of the learning experience leading to the micro-credential (EQF and/or national qualifications framework

The European Qualifications Framework (EQF) acts as a translation device to make national qualifications more readable across Europe, promoting workers' and learners' mobility between countries and facilitating their lifelong learning. The EQF system attempts to relate national qualification systems of different countries to a common European reference framework. Individuals as well as employers will be able to use the EQF to better understand and compare the qualification levels of different countries and different education and training systems.

Formally adopted by the European institutions in 2008, the EQF is being put in practice across Europe. It encourages countries to relate their national qualification systems to the EQF so that all new qualifications issued from 2012 carry a reference to an appropriate EQF level. The EQF system has eight reference levels describing what a learner has to know, understand and be able to do – "learning outcomes". In EU language, learning outcomes are specified in three categories: knowledge, skills and competences. Levels of national qualifications will be placed at one of the central reference levels, ranging from basic (Level 1) to advanced (Level 8).

As each B-GREEN-ED micro-credential has learning outcomes defined potentially we can assign an EQF level to it by mapping those learning outcomes onto the European Qualifications Framework (EQF). B-GREEN-ED micro-credentials are included inside EQF 7 and 8.
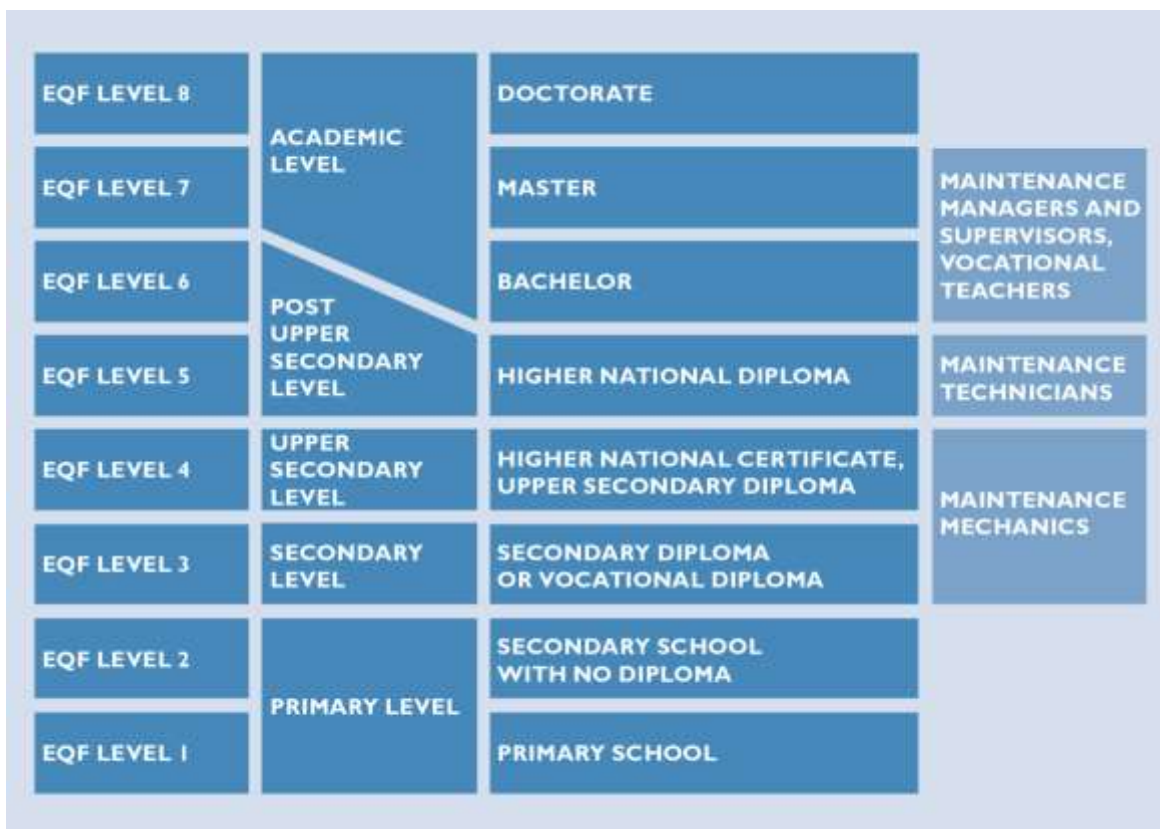
Figure 1.- European Qualification Framework (EQF)

8. Learning outcomes

B-GREEN-ED micro-credentials learning outcomes have been assigned so that to make mapping those learning outcomes onto the EQF as simple as possible. This process has been done following the internal rules of each university, whenever possible.

9. Form of participation in the learning activity

B-GREEN-ED micro-credentials have been delivered as online courses or blended courses, depending on each university structure and following its own internal rules.

10. Prerequisites needed to enroll in the learning activity

This element is optional, but for some B-GREEN-ED micro-credentials, specification of prerequisites needed to enroll in the learning activity, might have applied. In general, such prerequisites are defined in terms of knowledge and skills expected from the learner.

11. Type of assessment

Various types/methods of learning outcomes assessment can be adopted, depending on the type of a micro-credential, learning outcomes and forms of participation in the learning activity (mode of delivery, organization of the learning activity). Generally, the assessment procedures are formal and comprehensive. However, less formal methods of assessment or even based on participation in learning activities can be adopted too. Whatever methods of learning outcomes assessment are adopted for a particular micro-credential, they are part of the micro-credential description.

12. Supervision and identity verification during assessment

This element is optional, but in case when the assessment of learning outcomes for a particular micro-credential involves tests/examinations, the method of supervision and identity verification during assessment is part of the micro-credential description. The following options are considered:

- unsupervised with no identity verification,
- supervised with no identity verification,
- supervised online or
- onsite with identity verification

13. Quality assurance of the learning content

Inside the B-GREEN-ED project, it has been decided that micro-credentials are awarded by individual universities Therefore, the principles and procedures for quality assurance used by universities (based on internal procedures or national quality assurance mechanisms) have been applied to micro-credentials. This is essential for micro-credentials bearing ECTS points. However, the appropriate quality assurance in line with the Standards and Guidelines for Quality Assurance in the European Higher Education Area (ESG) should also be adopted. Regardless of the approach taken, the quality assurance process is the part of the ENHANCE micro-credential description.

It should be taken into account that the implementation of a complex quality assurance system for joint micro-credentials would be difficult, especially at the beginning of a project. It would, therefore, be more useful to agree on some basic standards and enhance them based on experience gained with pilot implementations.

The problem of assuring quality of B-GREEN-ED joint micro-credentials should also be considered in a wider context when exploring future exploitation of the micro-credentials developed inside the project.

14. Integration/stackability options

Micro-credentials can be:

- stand-alone, independent units of learning; this is usually the case with micro-credentials relevant for the labor market or professional development;
- a unit of learning (course, module) or an internally coherent composition of a number of units of learning related to a specific topic or field, being a component of one or more conventional bachelor, master or doctoral degree programmes or non-degree programmes offered to life-long learners

Inside the B-GREEN-ED project, micro-credentials have been conceived as stand-alone activities, though the university partners may consider to recognize univocally a specific set of online courses, depending on their own internal education strategy.

References

D. Orr, M. Pupinis, and G. Kirdulyte, Towards a European approach to micro-credentials: a study of practices and commonalities in offering micro-credentials in European higher education, NESET report, Publications Office of the European Union, Luxembourg 2020

European Commission. (2022, June). *A European approach to micro-credentials*. Retrieved from https://education.ec.europa.eu/education-levels/higher-education/micro-credentials

European Commission (2020, September) Communication on Achieving the European Education Area by 2025, COM(2020) 625 final, European Commission, Brussels, 30.09.2020 https://ec.europa.eu/education/resources-and-tools/document-library/eea-communication-sept2020_en

European Commission (2020) Digital Education Action Plan 2021-2027: Resetting education and training for the digital age. https://ec.europa.eu/education/education-in-the-eu/digital-education-action-plan_en

European Commission (2020, 30 June) European Skills Agenda for Sustainable Competitiveness, Social Fairness And Resilience, https://ec.europa.eu/social/main.jsp?catId=1223

European Commission, Directorate-General for Education, Youth, Sport and Culture. Background note: Targeted consultation with rectors of European Universities, 27 April 2021

International Federation of Standards Users. (2018). *IFAN Publications*. Retrieved from Guide 4:2018 Education and Training about Standardization (Updated 2018 and corrected by corrigenda 1): https://www.ifan.org/Final_Paris_IFAN%20Guide%204_V1.pdf

Micro-credentials and Bologna Key Commitments State of play in the European Higher Education Area, MICROBOL, February 2021, https://microcredentials.eu/wp-content/uploads/sites/20/2021/02/Microbol_State-of-play-of-MCs-in-theEHEA.pdf

Micro-Credentials Higher Education Consultation Group: A European Approach to Micro-Credentials: Output of the, December 2020 https://ec.europa.eu/education/education-in-the-eu/european-education-area/a-european-approach-tomicro-credentials_en

Micro-Credentials Higher Education Consultation Group: A European Approach to Micro-Credentials: Output of the, December 2020, https://ec.europa.eu/education/education-in-the-eu/european-education-area/a-european-approach-tomicro-credentials_en