DELIVERABLE 2.3

A practical manual for micro-credential implementation and credit accumulation

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1. Introduction

This manual provides **practical guidance** for academic institutions considering the implementation of micro-credentials, based on the practical experience of the chAnGE project. It reflects:

- **Pilot experience**: Piloting across partners, and early learner analytics.
- **Lessons learned**: Accreditation variability, RPL bridging, and employer engagement for CPD recognition.

Abbreviations			
EQF	European Qualification Framework	**HEI**	Higher Education Institute
ECTS	The European Credit Transfer and Accumulation System	**CPD**	Continuing Professional Development
MC(s)	Micro-credential(s)	**GDPR**	General Data Protection Regulation
VET	Vocational Education and Training Institute	**RPL**	Recognition of Prior Learning
MoU	Memorandum of Understanding		

2. Overview of Micro-credentials

2.1 Definitions and Core Concepts

The EU Council Recommendation on a European Approach to Micro-Credentials, June 2022, defines a micro-credential as the record of learning outcomes acquired through a small volume of learning, assessed against transparent criteria, and underpinned by quality assurance. According to this Recommendation, micro-credentials are designed to provide learners with specific knowledge, skills, and competences that address societal, personal, cultural, or labour market needs. They are portable, shareable, and may be standalone or stackable into larger qualifications, supporting flexible learning pathways.

This project utilises the European Credit Transfer and Accumulation System – ECTS - a standard for comparing university studies across Europe. It measures student workload (including lectures, study, and exams) with 60 credits representing a full academic year (1 ECTS equals 25-30 working hours, so an academic year would estimate 1,500–1,800 hours). This facilitates academic recognition, allowing students to transfer credits between universities and countries easily. In the case of this project, each micro-credential typically ranges from 1 to 30 ECTS credits, enabling learners to accumulate credits progressively.

The EU's strategic framework for education and training (2021–2030) positions micro-credentials as a key instrument to achieve lifelong learning targets, including the goal of 60% adult participation in training annually by 2030. Micro-credentials are seen as essential for addressing skills gaps, supporting digital and green transitions, and fostering social inclusion. They complement traditional qualifications

without undermining their integrity, offering modular learning opportunities for diverse learner profiles.

The EU Council Recommendation (2022) sets out European standard elements for describing micro-credentials (e.g., learner ID, title, awarding body, learning outcomes, workload in ECTS, European Qualification Framework (EQF) level, assessment type, quality assurance). It also outlines 10 principles for design and issuance, including quality, transparency, relevance, valid assessment, stackability, recognition, portability, learner-centeredness, authenticity, and guidance. These principles aim to build trust and facilitate uptake across Member States.

Ireland was the first European country to establish a coherent national framework for micro-credentials, integrated into the National Framework of Qualifications (NFQ) at levels 6–9 (corresponding to EQF levels 5-7).The Irish University Association's MicroCreds project (€12.3 million, 2020–2025) aimed to create scalable models for enterprise engagement, digital credentialing (Europass integration), and agile course development. These projects reflect a strong alignment with EU priorities.

2.2 Micro-credential benefits and challenges

Benefits include flexibility, accessibility, learner agency, labour-market relevance, and innovation in teaching and assessment.

For Learners

- **Flexibility and Accessibility:** Micro-credentials allow learners to engage in short, focused learning experiences that fit around work and life commitments.
- **Personalised Pathways:** Learners can stack micro-credentials toward larger awards, enabling adaptive learning journeys.
- **Enhanced Employability:** Courses are designed to meet labour market needs, supporting upskilling and reskilling in high-demand sectors.

For Employers and Society

- **Responsive to Skills Gaps:** Micro-credentials address emerging skills needs in areas such as digital transformation and sustainability.
- **Enterprise Collaboration:** Co-designed courses foster stronger partnerships between universities and industry.
- **Economic Recovery and Innovation:** They play a critical role in post-COVID recovery and in advancing EU digital and green agendas.

Despite their promise, several challenges remain:

- **Lack of Common Standards:** Variability in definitions and quality assurance across Europe can hinder recognition and portability.
- **Stackability and Credit Transfer:** While micro-credentials can be combined into larger awards, this requires clear frameworks and mutual recognition agreements.

- **Digital Infrastructure:** Effective implementation depends on robust systems for credential storage, authentication, and interoperability (e.g., Europass Digital Credentials Infrastructure).

2.3 Brief summary of the chAnGE project

Recent unprecedented climate change and extreme weather events have resulted in an escalation in climate-related health risks amongst an ever-expanding European population of older people. Climate-vulnerability in older people is exacerbated by the challenges of providing safe, responsive healthcare during climate crisis events. The Erasmus Knowledge Alliance project entitled, 'Climate change and Healthy AgeinG: co-creating E-learning for resilience and adaptation' (chAnGE), aimed to address some of these issues. Beginning in Autumn 2023, an alliance of universities, vocational education and training (VET) providers, and health & social care organisations, across Ireland, Portugal, Finland, Austria & Greece, co-created a suite of online micro-credentials for health and social care workers who deliver care to older people. The chAnGE alliance sought to enable and empower health and social care workers to plan and incorporate climate adaptation and resilience into their everyday work.

The innovative education was planned to be accessible, bite-sized, and stackable; co-created with target learners and older people, at EQF level 4-6. Learners would have access to resources for learning amplification, supporting as climate-resilience champions at work and to train others. The learning content and learning-amplification resources would be freely available for adaptation or use by others.

As planned, the chAnGE project delivered 15 micro-credentials (MCs) at EQF levels 4–6, co-created across partner countries, digitised on Moodle, piloted, and released in waves. The curriculum (Fig. 1) spanned foundations of climate change and health effects for older people (MC1), risk assessment (MC2), mitigation & co-benefits (MC3), resilience (MC4), project management and inclusive leadership (MC5–MC6), crisis management (MC7), entrepreneurship (MC8), stakeholder communication (MC9), digital tools and media competencies (MC10), climate adaptive interventions and training (MC11), solutions planning (MC12), policy advocacy (MC13), inclusion & empowerment (MC14), and a learning translation module (MC15).

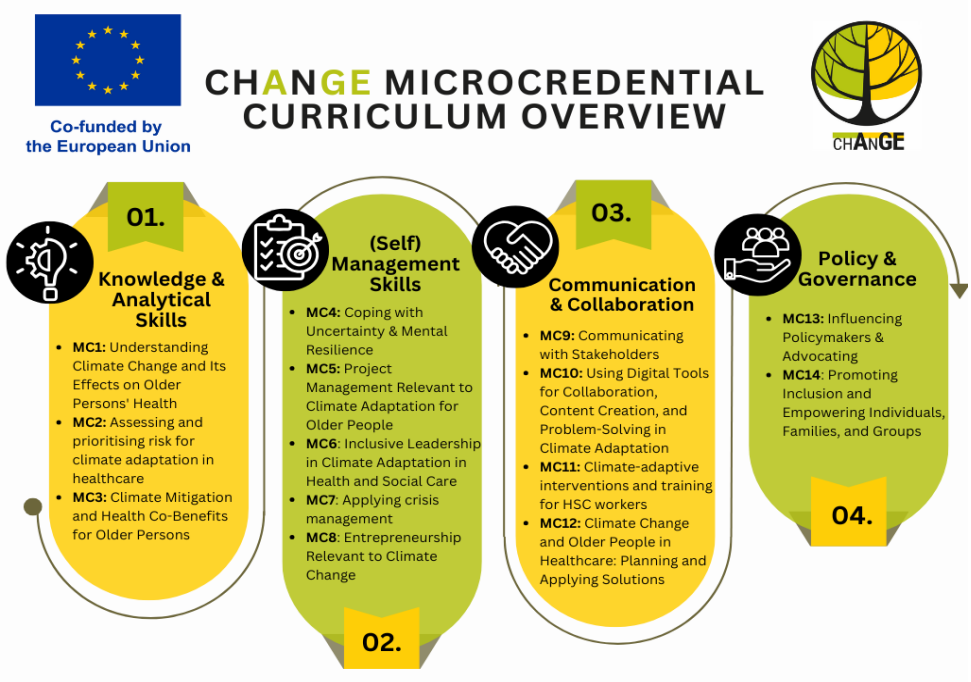

FIGURE 1: CURRICULUM SUMMARY

Guiding Principles

- **Flexibility**: enable academic credit bearing and non-credit pathways.
- **Quality assurance**: maintain transparent standards and valid assessments.
- **Stackability**: support modular accumulation toward larger awards.
- **Inclusivity**: ensure access for diverse learners across partner institutions.
- **Portability**: use open standards and digital credentials to support learner ownership.

Micro-credential content development and evaluation

- **Co-creation workshops** in each country with HSC professionals, managers, and older persons to validate MC topics and refine content.
- **Curriculum development**: The partners in every country were responsible for content development for 2–3 MCs aligned to EQF levels 4–6.
- **Digitisation**: Scripts converted into interactive Moodle courses, all in English initially.
- **Translation**: Moodle content was then adapted into four languages.
- **Piloting**: internal (partners) and external (specialist or educational specialist)
- **Analytics**: Learner tracking across registration(s), learning, and assignment completion; learners' post-learning evaluations.

3. Framework for Credit Accumulation in the *chAnGE* Project

The chAnGE project included 3 VETs and 5 HEIs, with a variable approach at baseline to micro-credentials, Table 1.

Table 1: Ability To Provide Formal Academic Credit For A Micro-Credential At Baseline And After Project

	At the Start of the Project		At the End of the Project	
Partner	*Yes / No*	*Accreditation Process/Framework*	*Yes/No/ In progress*	*Detail of any changes (if any)*
UCC	YES	'MicroCreds': https://www.ucc.ie/en/microcreds/ in accordance with EU MicroCreds Guidelines. MCs are be created and approved as standalone modules; student applications are processed through "UCC Apply."	Yes	New 1ECTS MC option added to offerings through close collaboration with UCC MicroCreds Project lead
CUAS	No	No process in place or planned	No	No process in place or planned
KARELIA	Yes	Quality management for micro-credentials is part of the regular quality management system of higher education institutions. The Finnish Education Evaluation Centre (Karvi) will develop a self-assessment model to support the development work of higher education institutions, and it will form part of the quality management of small competency modules. The self-assessment model is expected to be completed in 2026, and its use will be voluntary for higher education institutions.	Yes	No changes during the project.
ULISBOA	Yes	Approved by the Scientific Council, they can be offered through two pathways: as Lifelong Learning micro-credential (worth 1-2ECTS) or as an Elective Curricular Units (worth 3 or 6 ECTS)	Yes	No change

NKUA	No	Accreditation of lifelong learning is provided by the National Organisation for the Certification of Qualification and Vocational Guidance through the European Credit System for Vocational Education and Training (ECVET). However, these credits are not currently recognised for RPL within higher education. The NKUA Life-Long Learning Unit offers training programmes that offer either ECTS or ECVET credits and issues certificates upon successful completion. These certificates may be included in the recipient's CV as evidence of prior learning and professional development	In progress	Possibility to accredit in the future through NKUA's Life-Long learning unit.
LUZ	No	No process in place or planned	No	No changes during the project.
RIVERIA	No	No process in place or planned	Yes	An optional module worth 15 competence points is currently being planned. It will combine theoretical studies with a module on learning in working life. In Finnish vocational education and training, competence points are accumulated through the demonstration of skills and competence in real working life contexts. This optional module is offered locally and designed based on the needs of working life, with professional skills and competence defined in line with the vocational components of the qualification. Approval of the module is granted by the team leader for social and health training.
EXELIXI	No	There is no current or planned process.	No	No adjustments will be made during the project.

Thus, the chAnGE project adopted a dual twin approach, reflecting the practices already in place within participating institutions at the time (Figure 1). This approach also responded to learners' differing needs: some sought academic credit, while others preferred a certificate recognising completed learning or acquired skills for professional or employer –related purposes.

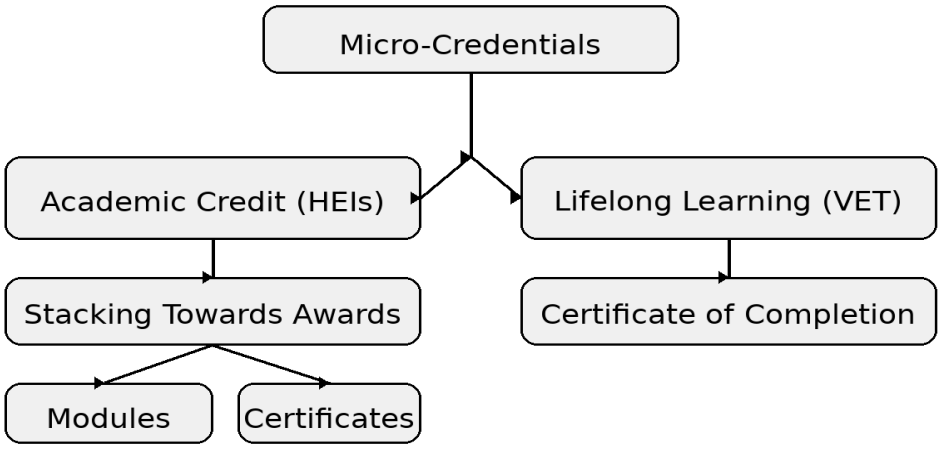

FIGURE 2: APPROACH TO MICRO-CREDENTIAL ACADEMIC CREDIT

The different approach between these two pathways is summarised in Table 2.

TABLE 2: COMPARING ACADEMIC CREDIT TO LIFELONG LEARNING

Element	**Pathway A: Academic Credit (often HEIs)**	**Pathway B: Lifelong Learning (often VETs)**
Outcome	ECTS credit; transcript/Europass	Certificate of Completion
Assessment	Formal, outcomes aligned; verified	Optional practice evidence
Mapping	EQF (4–6) + national frameworks	EQF (4–6); CPD hours
Recognition	Institutional + mutual recognition	Employer/CPD recognition
Portability	Europass Digital Credentials	Digital/PDF certificate; Europass optional

3.1 Risks & Mitigations

The experience gained through the chAnGE project enabled identification of specific risks and mitigation measures associated with micro-credentials and their recognition and accumulation towards academic credit. Table 3. outlines the potential risks identified, including their description, likelihood, and impact (H – high, M – medium, and L – low), together with the relevant performance indicators and our proposed mitigation measures.

TABLE 3: RISKS & PROPOSED MITIGATION MEASURES

#	Risk	Description of risk	Likelihood	Impact	Performance Indicators	Mitigation Actions
R1	Accreditation variability across EU partners	Divergent recognition practices (HEI vs VET) or varying national frameworks could hinder uniform stackability and portability.	H	H	Timely institution approval of MC credit; consistent award naming	Adopt dual-pathway model (HEI credit + VET skills cert); publish partner-specific recognition policies; establish mutual-recognition MoUs; encode HEI awards via Europass Digital Credentials with EU standard elements.
R6	Workload/ ECTS misalignment	Inconsistent workload estimation vs. actual learner effort could weaken ECTS credibility (EU transparency principle; ECTS guidance).	M	M	Workload standardisation checklist; Learner feedback	Use learning hours logs; calibrate ECTS via pilot analytics; publish workload assumptions (1 ECTS ≈ 25–30 hrs); adjust credit sizes and/or content transparently during QA steps.
R5	Assessment validity & identity verification	Non-uniform assessment practices or weak verification could undermine trust/recognition (EU principle: valid assessment, authenticity).	M	H	Audit of learner assessment and certification process; employer recognition of award and satisfaction	Align assessments to academic credit value; document learner identity verification; align with EU design principles; include grading/rubrics; store results with Europass metadata.

R7	Portability & data protection	Credentials not portable or mishandled (GDPR) could limit cross-border use (EU portability principle; Europass).	L–M	H	Learner's ability to share credentials; no data incidents	Issue HEI credentials via Europass Digital Credentials Infrastructure (EDCI); document GDPR roles/processes; provide learner wallet guidance; test verification flows.
R8	Employer/ CPD recognition gaps	Skills certificates not being recognised locally could reduce motivation for VET learners.	M	M	Employer uptake; CPD point mapping	Engage employers/professional bodies early; co-create CPD mapping; include outcomes, hours, EQF (optional) on certificates; showcase practice impact in communication activities.
R11	Learner accessibility gaps	Mixed digital skills and access could hinder uptake (poster insights; EU inclusion).	M	M	Helpdesk tickets; completion rates for certain groups; accessibility audit	Provide orientation micro credentials; ensure accessibility in templates (alt text, captions, contrast); add FAQs, glossary, multilanguage support; monitor completion by learner segment.
R12	Recognition of Prior Learning failure or delays	VET learners struggle to achieve credit for the learning in the future.	M	M	Audit of RPL applications.	Publish RPL conversion kit (evidence types, mapping matrix to outcomes, identity steps); provide templates (reflection prompts, supervisor testimonials).
R13	Stakeholder alignment & communication	Partners and learners unclear on pathways, stacking, and/or recognition.	M	H	Student queries; pathway conversion rates	Create learner handbooks & pathway diagrams; publish stackability tables; host partner webinars; maintain a public FAQ.

Notes on table: The EU Council Recommendation (2022) provides the definition of micro-credentials, the standard elements used to describe them and ten guiding principles: quality, transparency, valid assessment, learning pathways and stackability, recognition, portability, learner-centredness, authenticity, and information and guidance). These principles underpin R1, R5–R7, R9 and R11–R13.

4. Case studies of different approaches to credit accumulation in the chAnGE project

University College Cork, Ireland: The 'MicroCreds' Project

University College Cork Micro-Creds project: https://www.ucc.ie/en/microcreds/ provided an established framework for the approval and accreditation of micro-credentials enabling UCC to build on existing institutional processes. Most MCs in UCC are valued at 5 or 10 ECTS therefore new administrative systems had to be developed to accommodate 1 ECTS MCs. As the chAnGE project included several 2 ECTS MCs, these were created within the student registration system as 2 linked 1ECTS MCs, requiring students had to register for both simultaneously.

The MCs were developed by the Centre for Gerontology and Rehabilitation as standalone modules and approved through the standard school and college curriculum approval committees. Student applications were processed through the institutional online application platform, UCC Apply, and a unique examination record was created for each student. This enabled tracking of cumulative credit attainment. Credits achieved by each student could be contribute towards related learning opportunities such as the postgraduate certificate in older person rehabilitation and could be presented for RPL to other higher education institutions, subject to their RPL procedures.

The experience of the UCC team highlighted the significant administrative burden associated with the establishment and managements of 1and 2 ECTS MCs. The processes of registration, administrative processing, learner support, and assessment across multiple small MCs required substantially more time and resources than delivering a single 5 or 10 ECTS module. Consequently, offering larger 5 or 10 credit module with flexible or optional content and assessment pathways may represent a more efficient approach than delivering extensive suites of individual MCs. While 1 or 2 ECTS appear well suited to focused or discrete topics, a large, interconnected portfolio of small MCs, although highly learner-centred and flexible proved administratively complex, and may not be suitable in the long term.

University of Lisbon, Portugal: chAnGE Micro-credentials

The University of Lisbon (ULisboa) has an established framework for development, approval and certification of non-degree courses and micro-credentials (MCs) in accordance with Portuguese legislation and internal institutional regulations. The MCs developed within the chAnGE project were incorporated into these existing academic procedures.

At ULisboa, most MCs are typically worth between 3–6 ECTS. The introduction of smaller 1 or 2 ECTS MCs required additional adjustments to academic information and registration systems to support enrolment, assessment, and certification processes.

The MCs were developed by the relevant academic units and approved through the Scientific Council and Pedagogical Council procedures, followed by central institutional validation. ULisboa collaborated with Hospital da Luz Learning Health and *emeis* in the delivery of the project. However, as these organisations are not higher education institutions, accreditation and responsibilities remained with ULisboa.

Student applications and enrolment were managed through official university platforms (FMH-ULisboa) and (Fenix.edu), and each learner was assigned an academic record (Fenix.edu and FMH Moodle). All ECTS credits awarded are eligible for recognition within ULisboa programmes subject to credit transfer and recognition of prior learning procedures and may be considered by other institutions under their respective frameworks.

However, the implementation of multiple small-credit MCs generated a significant administrative and teaching workload, particularly during the initial phase, and proved more time-intensive than managing a single larger module of equivalent credits. The experience indicated that while 1–2 ECTS MCs are highly relevant for focused topics, particularly for professionals working in health and social care within a lifelong learning context, the provision of numerous small units may create substantive administrative complexity. Grouping related MCs into larger curricular units or designing broader and more flexible modules may improve efficiency and long-term sustainability while maintaining learner flexibility.

Overall, participation in the chAnGE Project strengthened ULisboa's capacity to design, accredit, deliver, and recognise micro-credentials within a lifelong learning strategy. As a result, ULisboa intends to continue offering 1 or 2 ECTS MCs through its Postgraduation School alongside larger elective curricular units integrated into programmes in the health and social care areas.

Karelia, Finland: Applying Draft National Framework

The Ministry of Education and Culture of Finland has prepared a draft framework for micro-credentials as part of the implementation of the European Union Recommendation on micro-credentials in Finland. The national framework was drafted in 2024 and has since been tested through several pilot projects across different higher education institutions. These pilots aimed to develop and evaluate the design, implementation, and effectiveness of micro-credentials in line with the proposed framework. As of spring 2026, no officially adopted national framework has yet been confirmed and Karelia University of Applied Sciences continues to closely monitor national developments closely in its own activities.

The draft national framework has been incorporated as comprehensively into institutional operations. Particular emphasis has been placed on planning micro-credentials in collaboration with representatives from working life. Within this project, both the target group and older adults were actively involved in the micro-credential development process. Future evaluation and further development of courses will also be undertaken in close cooperation with working life stakeholders.

To support stackability, the draft national framework provides some preliminary guidance, although consistent national practices have not yet been established. At Karelia, stackability was facilitated through a dedicated webpage compiling all available courses. For students enrolling through the Open University of Applied Sciences, all courses were grouped under the competence package “Impacts of Climate Change on Older Adults.” In the future, stackability could be strengthened further through clearer application of the four dimensions of the competence framework.

From the administrative perspective, the 1-2 ECTS study units closely resembled regular courses. Student enrolment in micro-credentials followed Karelia’s existing enrolment procedures, and credits were recorded in the student information system’s academic records register. Degree students could include MCs within their elective studies. For students enrolling through the Open University of Applied Sciences, completed credits are transferred from Karelia’s study register to the Finnish National Agency for Education service “Oma Opintopolku.” This official transcript serves as formal evidence of completed studies, and therefore Karelia does not issue separate certificates. In the future, the introduction of a digital climate health competence badge may be considered.

ECTS credits awarded through these MCs are eligible for recognition and may be considered by other institutions in accordance with their own recognition and credit transfer frameworks.

5. Pathways to Academic Credit

Firstly, several steps can enhance the quality of a suite of micro-credentials, which is a pre-requisite for learning recognition and credit accumulation:

Translation and Digitalisation

- Develop a terminology glossary and style guide.
- Apply accessibility standards, including contrast, captions, and alternative text.
- Adopt a standardised course shell template for Moodle.

Quality Assurance (QA)

- Design QA: Ensure alignment between learning outcomes, content, accessibility, and assessment.
- Pre-release QA: Validate navigation, usability, and assessment fidelity prior to delivery

Pilot Protocol

- Implement a cross-partner review process using a peer-review checklist covering:
  - Content scope, depth and relevance
  - Pedagogical approach
  - Assessment alignment and clarity
  - Accessibility considerations

Data and Evaluation

- Collect analytics relating to completion rates, learner engagement/time-on-task, and learner feedback.
- Use these findings to rebalance course offerings and improve accessibility

Documentation

- Publish pathway diagrams, stackability tables, and learner FAQs.
- Include guidance on RPL and CPD mapping within student handbooks.

5.1 HEI Route: ECTS

Based on our experience in the chAnGE project, we propose the following practical steps to support credit accumulation within institutions offering micro-credentials for ECTS credit.

Step 1: Curriculum Mapping and Descriptor Development

- Assign an appropriate EQF level and ECTS workload (1 ECTS ≈ 25–30 hours).
- Use the standard EU descriptor elements within module documentation, including:
  - Title
  - Issuing Institution
  - EQF level
  - Learning outcomes
  - Workload
  - Assessment type
  - Quality Assurance reference

- Align individual MCs with broader module or certificate pathways, according to content and progression opportunities.

Step 2: Assessment

- Select assessment methods (e.g. case analysis, scenario-based tasks, quizzes or MCQs) that align with learning outcomes, credit volume, and credential type.
- Clearly document learner identity verification procedures and grading criteria.

Step 3: Recognition and Portability

- Encode credentials within the Europass Digital Credentials Infrastructure **(EDCI)**.
- Publish stackability rules and module/certificate pathways for learners and employers.
- Provide learner handbooks containing pathway diagrams and guidance on Recognition of Prior Learning options.
- Establish mutual recognition agreements among HEI partners using Bologna Process tools.

Step 4: Delivery and Support

- Use standardized Moodle templates incorporating:
    - Course banner
    - Module overview
    - Learning outcomes
    - Workload expectations
    - Assessment information

Ensure templates support learner navigation and successful completion of content and assessment activities.

Step 5: Monitoring and Continuous Improvement

- Collect learner and employer feedback through surveys and usage analytics.
- Review learner participation and engagement data and adapt offerings accordingly.

5.2 VET Route: CPD

We propose the following practical steps for institutions providing micro-credentials solely for CPD certification.

Step 1: Skills-First Design

- Develop short, practice orientated micro-credentials focused on workplace application.
- Emphasise actionable learning and assessments approaches, such as:
    - Checklists
    - Protocols
    - Scripts
    - Practice-based activities

Step 2: Certificates of Completion

- Issue certificates including:
    - Course title
    - Learning outcomes
    - Learning hours
    - EQF level (where applicable).
- Include evidence logs such as reflective prompts, task completion checklists.

Step 3: Optional Assessment

- Use practical demonstrations or portfolio evidence where appropriate.
- Maintain low barriers to participation to encourage engagement.

Step 4: RPL Conversion Route

- Publish an RPL conversion process outlining:
    - Accepted learning evidence types (e.g. reflections, supervisor testimonial).
    - Mapping matrices linking evidence to learning outcomes.
    - Identity verification procedures.

Step 5: Employer Engagement

- Align MCs with CPD frameworks and professional body requirements.
- Demonstrate the impact of learning on work practice through targeted dissemination and communication activities.

6. Conclusion

Formal credit accumulation through micro-credentials is particularly valuable for learners who benefit from gaining academic credit. It can provide a pathway towards a formal qualification and reduce learners' future study workload where 5, 10 or more ECTS credits have already been achieved and can subsequently contribute towards a degree programme.

Where a MC is accredited by a recognised educational institution and linked to ECTS, the process of credit recognition and accumulation, either locally or across institutions, is generally more straightforward. For MC learning that is not linked to ECTS, consideration must instead be given to pathways for RPL within other institutions or countries.

In both cases, issuing institutions have a responsibility to make micro-credential information publicly available, including learning outcomes, assessment methods and learning hours. This enables external institutions to evaluate the learning for RPL purposes and allows employers to understand the scope and value of the certificate awarded.