

MATTR



DIGITARY
by | par parchment

ARUCC MyCreds™ | MesCertif™ National Network

Microcredentials in Data Systems & Lifelong Learning

ARUCC MyCreds Virtual Skills Passport

Microcredential Project

May 3 2023

Funding for this project is provided by the
Government of Ontario.

MyCreds.ca  **MesCertif.ca**

This document and MyCreds™ | MesCertif™ are the
Intellectual Property of the Association of Registrars
of the Universities and Colleges of Canada (ARUCC);
Sharing requires permission of ARUCC.

Presentation and Panel Discussion



Joanne Duklas
President, Duklas
Cornerstone Consulting
Co-chair
Microcredential Task Force



Alex Jackl
President & CEO, Bardic
Systems
Co-chair
Microcredential Task Force



Bert van der Geest
Director, Canada



Doug Holmes
Manager, eTranscripts OUAC





Who is Who?



The Association of Registrars of the Universities and Colleges of Canada (ARUCC) owns the MyCreds™ National Network.



The Government of Ontario is funding the Ontario Virtual Skills Passport Pilot Project.



DCC Inc. is providing ARUCC overall program management support for the sustainable adoption and implementation of the Virtual Skills Passport Initiative and MyCreds™.



Digitary is providing the IT infrastructure that powers MyCreds™ and technical onboarding support for post-secondary institutions.



MATTR is providing the decentralized identity and verifiable credential technical infrastructure being used to extend the MyCreds™ solution and supporting the Pilot Project technical standards consultation workstream.

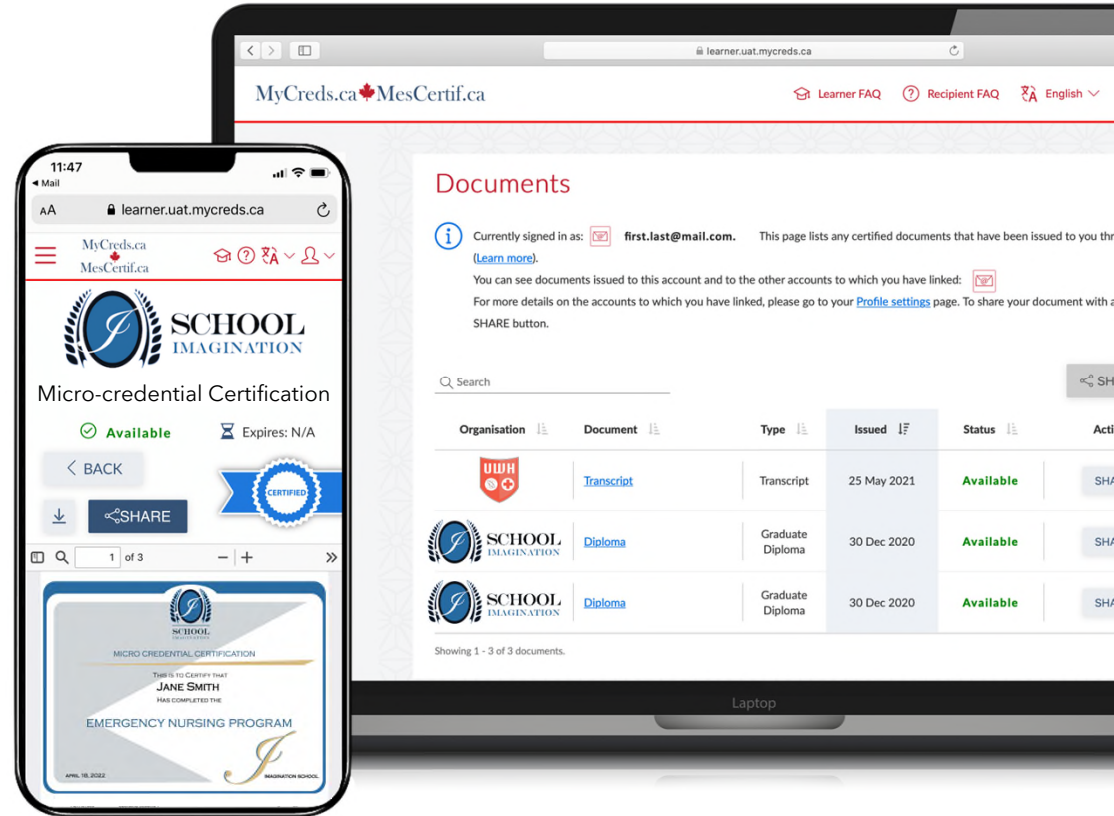
ARUCC MyCreds™

- **What is MyCreds™?**

- 24/7 virtual credential platform & digital exchange highway
- Incorporated, shared service that is sector owned
- Regional, national, and international connectivity

- **What does MyCreds™ support?**

- Inbound admissions; support letters to help learners access funding, student authorizations, and other govt support; transition support to jobs and regulatory bodies
- Outbound: Transcripts, parchments, letters, **badges, micro-credentials, degrees, diplomas, certificates, etc**



This document and MyCreds™ | MesCertif™ are the Intellectual Property of the Association of Registrars of the Universities and Colleges of Canada (ARUCC); Sharing requires permission of ARUCC.

Ontario Virtual Skills Passport Project for Micro-Credentials

- Contribute to community data open standards consultations and issue digital micro-credentials as Verifiable Credentials



Transcripts



Parchments



Confirmation letters



Micro-credentials



Awards



& more...





Why are data exchange standards needed for Micro-Credentials?

- Micro-Credential use is expanding rapidly in both the private sector and the post-secondary sector
- Learners and employers (verifiers) need to understand and interpret the certification
- Verifiers need to trust in the issuing organization and in the methods for credential exchange
- Increased learner mobility both nationally and internationally
- Learner control and self-sovereignty over their credentials

Categories of Required Standards

- Credential content representation
 - Rich data structures to enable the issuance, common understanding and exchange of data as it relates to the credential
 - Development of a credential standard is a necessary first step to enable internet standards and digital trust through W3C Verifiable Credentials
- Internet Standards and Digital Trust for W3C Verifiable Credentials
 - World Wide Web Consortium (W3C)
 - DIDs, VCs, JSON-LD, Linked Data Proofs, CSS, HTML, XML, SVG, RDF, SOAP, ZCAP-LD, WebAuthn, CHAPI
 - Decentralized Identity Foundation (DIF)
 - DIDComm 2.0, Well Known DID Configuration, Universal Resolver & Register
 - OpenID Foundation (OIDF)
 - OpenID Connect, OpenID Connect Credential Provider
 - Internet Engineering Task Force (IETF)
 - URL, URI, URN, OAuth, JOSE (JWS/JWE/JWT)

Why are we focusing on Credential and Micro-Credential data standards?

National data interoperability

- Promote learner mobility and efficiencies for institutions
- Enable electronic consumption of credential records

International data interoperability

- Promote learner mobility and international exchange
- Ensure compatibility and interoperability with international initiatives


Portability and comparability

- Learner portability and exchange of badges (Open Badges v2.0 compliant)
- Learner portability and exchange of micro-credentials for consumption by institutions, employers and other verifiers


Expansion of use cases beyond post-secondary


- Enable W3C Verifiable Credentials that are interoperable in learner wallets together with other out-of-network Verifiable Credential sources

Current Data Standards

 PESC College Transcript

 PESC High School Transcript

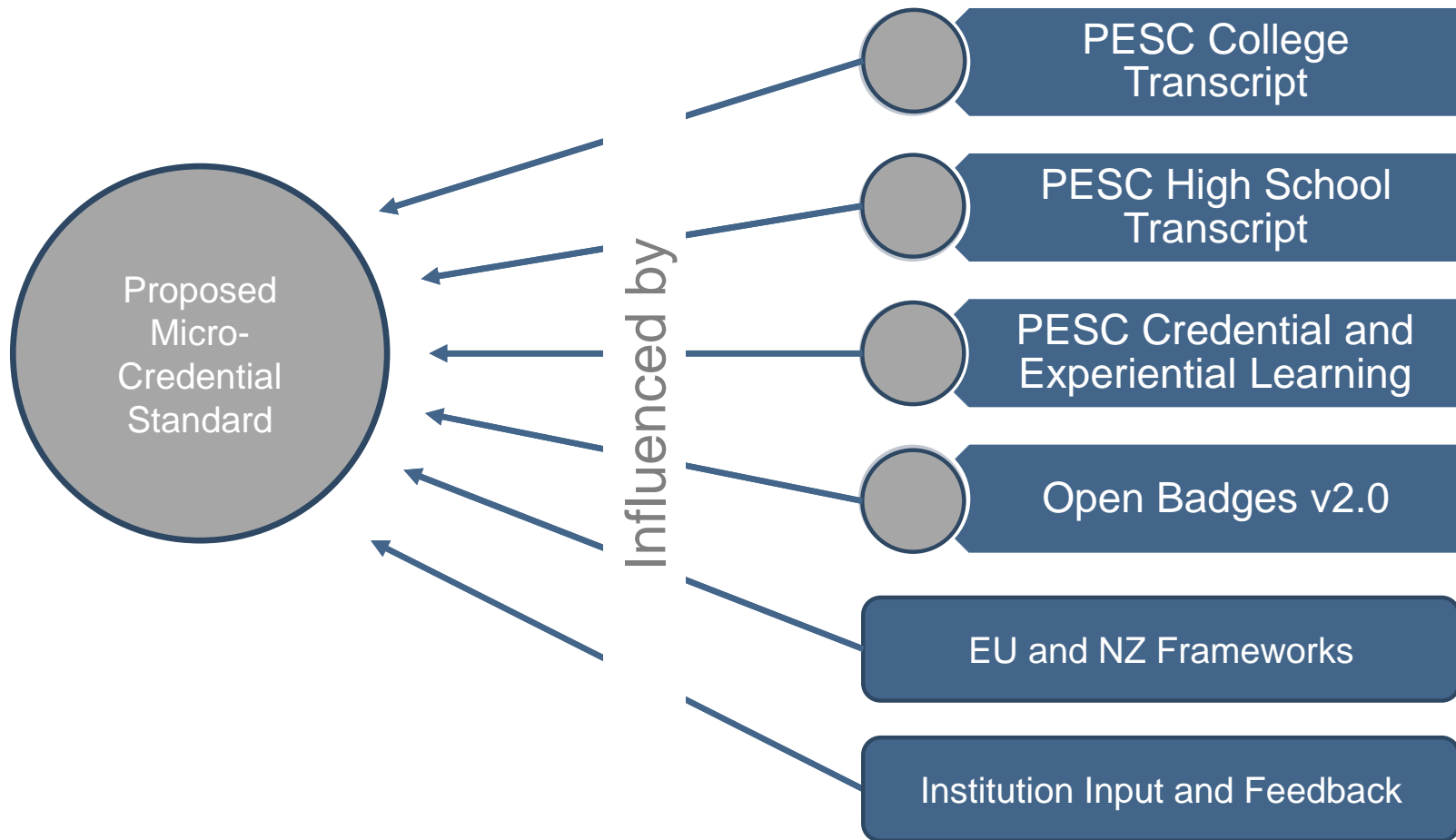
 PESC Credential and Experiential Learning

 Open Badges v2.0

 W3C Verifiable Credentials

- Widely used by post-secondary institutions across the country for transcript exchange
- Used in several provinces and states in North America for High School transcript exchange
- Developed and used at Stanford University
- Used world-wide for interoperable exchange of badge information
- An open standard for Verifiable Credentials enabling portability and interoperability

Proposed Micro-Credential Data Standard





About CanPESC



- Established 2011
- Open, volunteer PESC user group
 - Members from Canadian PSIs, hubs, government, vendors
 - Discuss, promote, coordinate and liaise between PESC and ARUCC
 - Ensures PESC's mission and deliverables, including approved standards, supports and incorporates the needs and interests of Canadian stakeholders
- <https://www.pesc.org/canadian-pesc-user-group-1.html>

Approach for obtaining input and feedback

- Consultation with PESC on the PESC Credential and Experiential Learning standard
- Consultation with Stanford University on their original development and use of the PESC Credential and Experiential Learning
- Workshops and presentations to institutions
- Communications through CanPESC at regular monthly meetings
- Presentation at PESC Fall Summit and CanPESC meeting
- Participation in Micro-Credential Forums by eCampus Ontario
- Outreach to experts in Micro-Credentials across the country
- Feedback from Virtual Skills Passport Pilot participants
- Setup of Github and Slack channels for communications



Proposed data structures

Student			
	Person		
		SchoolAssignedPersonID	
		AgencyIdentifier	
		AgencyAssignedID	
		AgencyCode	
		AgencyName	
		CountryCode	
		StateProvinceCode	
		NoteMessage	
		RecipientAssignedID	
	Birth		
		Birthdate	
		Birthday	
	Name		
		NameCode	
		NamePrefix	
		FirstName	
		MiddleName	
		LastName	
		NameSuffix	
		NameTitle	
		CompositeName	
	Contacts		
		Address	
			AddressLine
			City
			StateProvince
			StateProvinceCode
			PostalCode
			CountryCode
		Phone	
			AreaCityCode
			PhoneNumber
		Email	
		URL	
	Gender		
		GenderCode	
	Deceased		
		DeceasedIndicator	
	NoteMessage		

Student > Person data structure

- Utilized the same structures from the PESC College Transcript and selected those typically used by institutions across the country
- Identified **required** data elements (in green) needed for the MyCreds Platform and the Verifiable Credential
 - SchoolAssignedPersonID
 - Birthdate
 - FirstName
 - LastName
 - Email



Proposed data structures

Student.LearningRecord.MicrocredentialAward			
	LearningRecord		
		MicrocredentialAward	
			AwardID
			AwardLevel
			AwardCategory
			AwardTitle
			AwardDescription
			AwardHonours
			AwardProgram
			ProgramType
			ProgramName
			ProgramDeliveryMethod
			ProgramInstruction
			ProgramEffort
			ProgramStructure
			AwardDate
			IssuedDate
			ExpiryDate
			DescriptorURL
			Assessment
			NoteMessage
			EarningCriteria
			EarningCriteriaURL
			EducationalAlignment
			Competencies
			LearningOutcomes
			SkillsCategories

Student > LearningRecord > MicrocredentialAward data structure

- Modeled structures from the PESC Credential and Experiential Learning and Award structures from PESC College transcript
- Included structures from Open Badges v2.0
- Identified **required** data elements (in green) needed for the MyCreds Platform and the Verifiable Credential
 - AwardID
 - AwardLevel
 - AwardTitle
 - AwardDescription
 - AwardHonours
 - AwardProgram
 - ProgramName
 - AwardDate
 - IssuedDate

Proposed data structures



Student.LearningRecord.MicrocredentialOrganization				
		MicrocredentialOrganization		
			IssuingBodyID	
			IssuingBodyName	
		Contacts		
			Address	
				Addressline
				City
				StateProvince
				StateProvinceCode
				PostalCode
				CountryCode
			Phone	
				CountryPrefixCode
				AreaCityCode
				PhoneNumber
				PhoneNumberExtension
			Email	
			URL	
		Department		
		Division		
		PartnerEndorsement		


Student > LearningRecord > MicrocredentialOrganization data structure

- Modeled structures from the PESC Credential and Experiential Learning and Organization structures from PESC College transcript
- Identified **required** data elements (in green) needed for the MyCreds Platform and the Verifiable Credential
 - IssuingBodyID
 - IssuingBodyName
 - CountryCode
 - URL

Sample XML and rendered Micro-Credential



```
<?xml version="1.0" encoding="UTF-8"?>
- <Student xsi:schemaLocation="https://core.digitality.net/schema/mycreds/vsp/2022/11/01
https://core.digitality.net/schema/mycreds/vsp/2022/11/01"
xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
xmlns="https://core.digitality.net/schema/mycreds/vsp/2022/11/01">
  - <Person>
    <SchoolAssignedPersonID>N0000001</SchoolAssignedPersonID>
    - <Name>
      <FirstName>Test</FirstName>
      <LastName>Learner1</LastName>
    </Name>
    - <Contacts>
      <Email>N0000001@humber.ca.zzz</Email>
    </Contacts>
  </Person>
  - <LearningRecord>
    - <MicrocredentialAward>
      <AwardID>EMHL 100</AwardID>
      <AwardLevel>Micro-credential</AwardLevel>
      - <AwardTitle>
        <Title>Micro-credential</Title>
      </AwardTitle>
      - <AwardProgram>
        <ProgramName>Excellence in Mental Health Organization and People
        Management</ProgramName>
      </AwardProgram>
      <AwardDate>2022-10-12</AwardDate>
      <IssuedDate>2022-12-22</IssuedDate>
    </MicrocredentialAward>
    - <MicrocredentialOrganization>
      <IssuingBodyID>CA00098</IssuingBodyID>
      <IssuingBodyName>Humber College</IssuingBodyName>
      - <Contacts>
        - <Address>
          <CountryCode>CA</CountryCode>
        </Address>
        <URL>https://cpl.humber.ca/</URL>
      </Contacts>
    </MicrocredentialOrganization>
  </LearningRecord>
</Student>
```



HUMBER

Humber College Institute of Technology and Advanced Learning in partnership with
SickKids Centre for Community Mental Health Learning,
hereby awards this Micro-credential to


Test Learner1

has successfully completed the requirements of

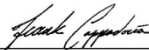
Excellence in Mental Health Organization and People Management


January 12, 2022

This micro-credential is issued upon the recommendations of




SickKids
Centre for
Community
Mental Health
LEARNING INSTITUTE


Dean, Continuous Professional Learning



HUMBER
Continuous Professional Learning



This document and MyCreds™ | MesCertif™ are the Intellectual Property of the Association of Registrars of the Universities and Colleges of Canada (ARUCC); Sharing requires permission of ARUCC.

Other features included in the proposed data standard

- AwardTitle and/or ProgramName can sometimes be lengthy and institutions like to have these elements display in a certain way
 - A DisplayInfo group with an unbound DisplayName element has been introduced to separate how a credential may need to be displayed vs the underlying data itself such where a program name needs to be deliberately split across multiple lines
 - This DisplayInfo can be applied to Academic Credentials as well as Micro-Credentials and used for any of the data elements
- ```

- <AwardProgram>
 <ProgramName>Advanced Manufacturing and Automation Pre-Operator Level 3</ProgramName>
 - <DisplayInfo>
 <DisplayName>Advanced Manufacturing</DisplayName>
 <DisplayName>and</DisplayName>
 <DisplayName>Automation Pre-Operator Level 3</DisplayName>
 </DisplayInfo>
</AwardProgram>

```

# Areas for further refinement

- Other metadata associated with the Micro-Credential:
  - Learning Outcomes
  - Competencies and Skills
  - Earning Criteria
  - Methods of delivery and assessment
  - Industry Partner endorsement
  - Stackability of courses or badges leading to the credential
- Draft structures have been put into the proposed model, but further refinement is required with institutions that may be interested and planning to capture this associated data

# Mapping to EU and NZ frameworks

- Listings of data elements from the EU and NZ frameworks have been provided and mapped in draft to the proposed data structure
- Lack of complete definitions for the data elements make it difficult to know if the draft mapping is accurate
- Further work with our EU and NZ counterparts on the definitions will help to ensure compatibility



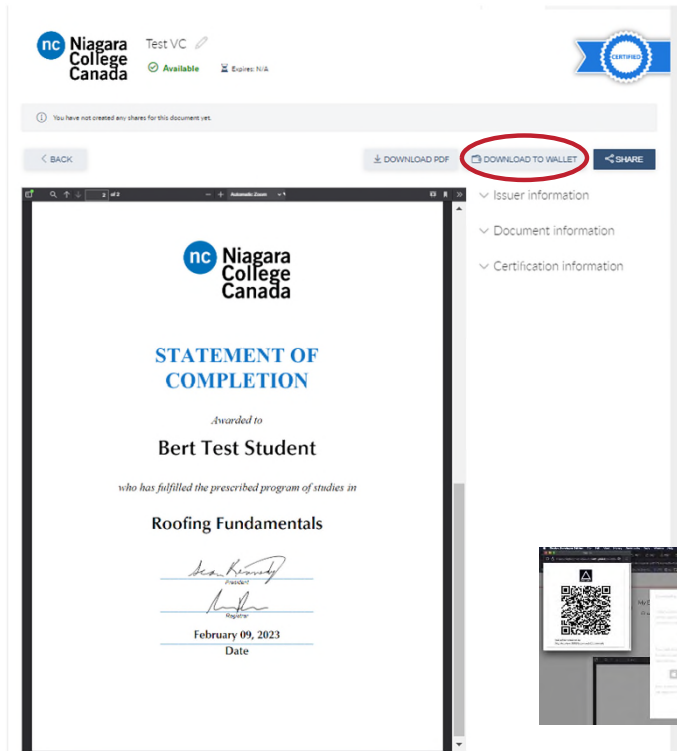
# Uses for Credential and Micro-Credential Data Standards

- Promote improved understanding and comparability of Micro-Credentials
- Machine-readable consumption of both Academic Credentials and Micro-Credentials
- Enable national and international exchange of both Academic Credentials and Micro-Credentials
- Enable transformation into W3C Verifiable Credentials as we are demonstrating through the Virtual Skills Passport project
- Improved recognition of Micro-Credentials based upon metadata like learning outcomes, competencies and skills, etc.

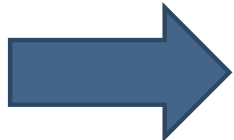
# Sample Credential

## MyCreds Credential

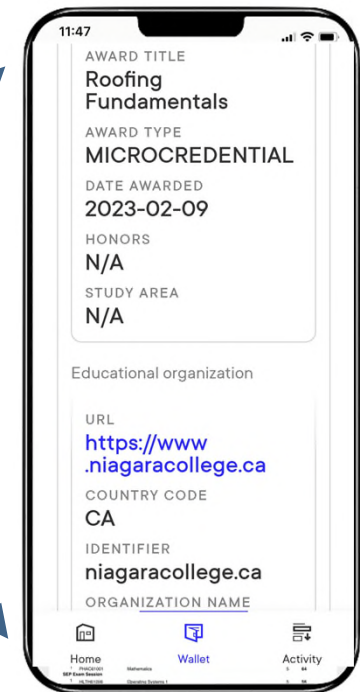
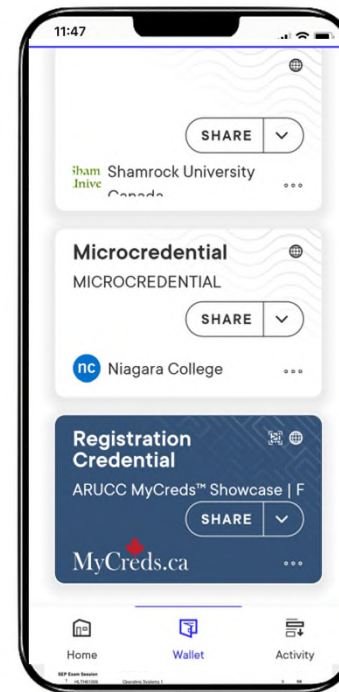
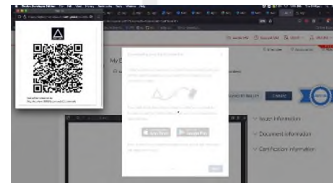
## W3C Verifiable Credential



Download to  
Wallet

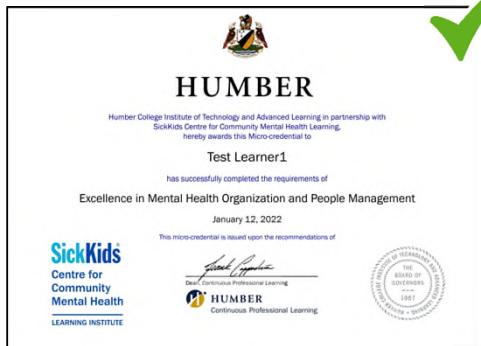


MATTR  
Digital Wallet



This document and MyCreds™ | MesCertif™ are the Intellectual Property of the Association of Registrars of the Universities and Colleges of Canada (ARUCC); Sharing requires permission of ARUCC.

# Proposed vision for a Micro-credential framework



## Credential:

- Learner Name
- Award Title
- Program Name
- Issuing Organization
- Issued Date
- ...

*What if learners could share their micro-credentials and recipients could consume the secure and trusted credential information together with the relevant contextual information as data?*

## Competencies:

- Competency 1
- Competency 2
- Competency 3
- ...

## Skills Achieved:

- Skill 1
- Skill 2
- Skill 3
- ...

## Learning Outcomes:

- Learning Outcome 1
- Learning Outcome 2
- Learning Outcome 3
- ...

## Delivery and Assessment:

- Hours/Credits
- Instruction
- Delivery methods
- Assessment

## Industry Partner endorsement



# Q & A

This document and MyCreds™ | MesCertif™ are the Intellectual Property of the Association of Registrars of the Universities and Colleges of Canada (ARUCC); Sharing requires permission of ARUCC.

# Staying Connected



[mycreds.ca/members/ecosystem](https://mycreds.ca/members/ecosystem)



<https://github.com/ARUCC-MyCreds-National-Network>



[https://join.slack.com/t/arucc-mycreds/shared\\_invite/zt-1htdnmpk5-FyFc5FOSFBgl8jF41acpiQ](https://join.slack.com/t/arucc-mycreds/shared_invite/zt-1htdnmpk5-FyFc5FOSFBgl8jF41acpiQ)



[info@aruccnationalnetwork.ca](mailto:info@aruccnationalnetwork.ca)