



Ontario College Quality Assurance Service

Service de l'assurance de la qualité des
collèges de l'Ontario

Credential Validation Service (CVS)

Credential Validation Guidelines

2024/2025



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Using These Guidelines

About the Guidelines

These Guidelines are designed to help Ontario colleges navigate the Credential Validation Service (CVS) process for new programs and modifications to existing ones.

Important Note:

- **Resources:** Templates and reference documents mentioned in this guide can be found on the Ontario College Quality Assurance Service (OCQAS) [website](#) under the Resources tab. For quick access, the Resources link is provided below, beside the page number throughout the document.

Creation and Updates of the Guidelines:

- **Development:** Created by the OCQAS team with input from users and invested parties within the Ontario college system.
- **Scope:** Focuses solely on CVS Validation criteria and processes.
- **Annual Updates:** Ensures alignment with current expectations and feedback from the Ontario college system.
- **Responsibility:** Users must ensure when working with CVS they reference the current version of the Guidelines.

Additional Inquiries:

- **Funding Submissions:** Contact the Postsecondary Unit, Ministry of Colleges, and Universities (MCU).
- **Degree-Level Submissions:** Contact the Postsecondary Education Quality Assessment Board (PEQAB).

The Guidelines are updated annually to ensure alignment with current expectations within the Ontario college system. It is the responsibility of the user of these Guidelines to ensure they are referencing the current version.

Legislation Considerations

When submitting information to CVS, it is collected in accordance with the following legislation:

- **Freedom of Information and Protection of Privacy Act**
- **Post-secondary Education Choice and Excellence Act, 2000**
- **Minister's Binding Policy Directives**
- **Other relevant legislation**



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Glossary of Terms and Acronyms

Alignment Exercise	The comparison between existing VLOs and proposed new VLOs.
Mapping	A demonstrated alignment indicating the courses in which the VLO or EES will be taught and evaluated.
Modification	The Validation request submitted online or via email for existing and previously validated programs.
Program Description	The narrative that identifies the skills and knowledge that graduates of these programs of instruction will be able to reliably demonstrate (where no Program Standard exists). Program Descriptions are not published on the MCU website.
Program Standard	Ministry-approved publications that identify the minimal skills and knowledge all graduates of these programs of instruction will be able to reliably demonstrate. Program Standards are published on the MCU website.
Proposal	The Validation request submitted online or via email for new programs.
Submission	A generic term used for both Proposals and Modifications via the CVS Anytime Anywhere Tool (CVS AA -Tool) or by email when required.
Validation	Formal CVS decision that the Submission conforms to the Minister's Binding Policy Directive – Framework for Programs of Instruction and are consistent with the CVS Titling Protocols.

Acronyms (with French equivalents)

English Acronyms	English Title	French Acronyms	French Titles
APS	Assigned Program Sequence	SPA	Séquence de programme assignée
CQAAP	College Quality Assurance Audit Process	PAMAQC	Processus d'audit en matière d'assurance de la qualité des collèges
CVS	Credential Validation Service	SVTC	Service de Validation des titres de compétence
CVS AA - Tool	Credential Validation Service Anytime Anywhere Tool	Outil SVTC-AA	Outil Anytime Anywhere du Service de Validation des titres de compétence
EES	Essential Employability Skills	RARE	Résultats d'apprentissage relatifs à l'employabilité
EL	Experiential Learning	AE	Apprentissage par l'expérience
MBPD-FPI	Minister's Binding Policy Directive - Framework for Programs of Instruction	DEMCU-CEPE	Directives exécutoires du ministre des Collèges et Universités reliées au Cadre d'élaboration des programmes d'enseignement
MCU	Ministry of Colleges and Universities	MCU	Ministère des Collèges et Universités
MTCU Code	Ministry of Training Colleges and Universities code	Code MFCU	Code du Ministère de la Formation, des Collèges et Universités
OCAD	Ontario College Advanced Diploma	DACO	Diplôme d'études collégiales de l'Ontario de niveau avancé
OCC	Ontario College Certificate	CECO	Certificat d'études collégial de l'Ontario
OCD	Ontario College Diploma	DECO	Diplôme d'études collégiales de l'Ontario
OCGD	Ontario College Graduate Certificate	CPCO	Certificat postdiplôme collégial de l'Ontario
OCQAS	Ontario College Quality Assurance Service	SAQCO	Service de l'assurance de la qualité des collèges de l'Ontario
OQF	Ontario Qualifications Framework	CCTC	Cadre de classification des titres de compétence
PAC	Program Advisory Committee	CCP	Comité consultatif de programme
PEQAB	Postsecondary Education Quality Assessment Board	CEPEQ	Commission d'évaluation de la qualité de l'éducation postsecondaire
PFAAM	Program Funding Approvals and Administration Module	MAAFPE	Module d'administration et d'approbation du financement des programmes d'étude
PSU	Program Standards Unit	UNP	Unité des normes relatives aux programmes
VLO	Vocational Learning Outcomes	RAFP	Résultats d'apprentissage de formation professionnelle

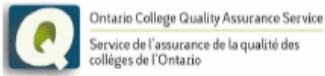


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Contact

The CVS is dedicated to maintaining transparency and consistency in all interactions with invested partners. If you have any questions or need further assistance, please:

- **Visit the CVS resources** on the OCQAS website
- **Email CVS** at cvs@ocqas.org



About CVS: Responsibilities and Regulatory Requirements

The **College Validation Service (CVS)** ensures that Ontario's colleges offer programs that meet community and industry needs. The CVS process aligns with the [Minister's Binding Policy Directive - Framework for Programs of Instruction](#).

Mandate of the CVS:

- **Quality Assurance:** Ensures all programs, regardless of funding, meet the established Credentials Framework and adhere to accepted college system nomenclature and/or program titling principles.
- **Credential Integrity:** Protects the interests of students and employers by maintaining consistent and high-quality standards for Ontario's programs.

The CVS uses the **outcomes-based credentialing model**, requiring colleges to educate students based on validated outcomes for each credential. The [Minister's Binding Policy Directive - Framework for Programs of Instruction](#) (MBPD-FPI) sets the minimum provincial requirements for all programs, regardless of funding source.¹

Mission and Vision

The CVS operates within [OCQAS](#). The mission and vision statements of OCQAS apply to all services provided, including CVS:

- **Vision:** To be acknowledged globally as a leading post-secondary education quality assurance agency in Canada.
- **Mission:** To guide and support the public college system in Ontario through institutional quality assurance to achieve a standard of excellence recognized by students, graduates, employers, government, and the communities they serve.

CVS Accountability

To ensure continuous improvement, the Ontario College Quality Assurance Service (OCQAS) conducts a review of the CVS every five to seven years. This review identifies achievements and gaps in the service, allowing for necessary adjustments. The review process involves multiple invested parties from across the Ontario college system in a thorough examination of the service. The most recent review was conducted during the 2020–2021 academic year.

¹ Framework for Programs of Instruction p.10, p.14
<http://www.tcu.gov.on.ca/pepg/documents/FrameworkforPrograms.pdf>



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Ontario Qualifications Framework

The **Ontario Qualifications Framework (OQF)** outlines the “knowledge and skills (learning outcomes) which each credential or qualification (e.g., certificate, diploma, bachelor, masters, or doctoral degree) is intended to achieve.”² For full details, please review the [OQF](#) online.

In alignment with the Framework for Programs of Instruction and [Minister’s Binding Policy Directive - Framework for Programs of Instruction](#), Ontario colleges require CVS Validation for the following credentials:

- **Ontario College Certificate (OCC)** (including Apprenticeship OCC)
- **Ontario College Diploma (OCD)**
- **Ontario College Advanced Diploma (OCAD)**
- **Ontario College Graduate Certificate (OCGC)**

Colleges seeking new program validation must align with an existing MTCU code where possible. If a single MTCU code does not represent the proposed new program, alignment to two codes is permitted. When two codes are used, a new MTCU code is created by the MCU. See Appendix C for an example of mapping to two MTCU codes.

Table 1 provides an overview of the MTCU code grouping by credential, typical duration, and typical number of semesters. The specific MTCU codes can be found in the APS table.³

² Ministry of Colleges and Universities, 2021, para. 1

³ APS Table is found on the OCQAS webpage https://www.ocqas.org/wp-content/uploads/2022/09/MTCU-APS-Table_Sept-2022.xlsx

Table 1. MTCU Codes Parameters

MTCU Code Groupings	Ontario College Credential	Hours Range as per OQF	Total Semesters
N/A	Certificate – Board ⁴ approved	240–500	Locally determined
40000	Ontario College Certificate (OCC)	600–700	2
	OCC Apprenticeship	480–840 ⁵	2-3
50000	Ontario College Diploma (OCD)	1,200–1,400	4
60000	Ontario College Advanced Diploma (OCAD)	1,800–2,100	6
70000	Ontario College Graduate Certificate (OCGC)	600–700	2
80000	Bachelor's Degree	See PEQAB	8

Each MTCU code aligns with a College Program Standard or a Program Description; the [CVS AA - Tool](#) has a database of existing College Program Standards and Program Descriptions. The database was developed in early 2018 and therefore, programs developed prior to 2018 may not be included in the system.

Program Standards and Program Descriptions

College Program Standards and Program Descriptions are the starting points for program development, review, and renewal across the Ontario college system.

College Program Standards

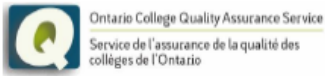
Program development using College Program Standards requires full alignment with the elements outlined in the Standard, including:

- Program title
- Vocational learning outcomes
- Essential employability skills
- General education requirements

Individual colleges can determine the specific program structure, delivery methods, assessments, and other curriculum matters to help students achieve the outcomes in the Standard.

⁴ College's Board of Governors

⁵ The hours range for Apprenticeship OCCs differs from the hours range for OCC in response to the hours designated by the Ministry of Labour Trades and Skills Development – Skilled Trades Ontario Curriculum Standards for the respective trade codes. These hours represent the in-class portion of apprenticeship training.



College Program Standards are developed, reviewed, and approved by the Program Standards Unit (PSU) of the Postsecondary Education Quality Assessment Board (PEQAB). The development process is comprehensive and involves various stakeholders, including employers, employees, regulatory bodies, professional associations, graduates, students, faculty, and college administrators.

Program Descriptions

Program development using Program Descriptions requires alignment with previously validated vocational learning outcomes. Requirements for titling, essential employability skills (EESs), and general education must be adhered to. Colleges are responsible for developing and reviewing Program Descriptions to ensure they remain current and relevant.

The [Minister's Binding Policy Directive - Framework for Programs of Instruction](#) requires all programs or cluster of programs to have a Program Advisory Committee (PAC) to advise colleges on the learning outcomes that will prepare the graduates to meet the needs of the workplace. Through the College Quality Assurance Audit Process (CQAAP), it is verified that colleges collect input from PACs and other stakeholders to keep vocational learning outcomes up to date.

As with Program Standards, individual colleges determine the specific program structure, delivery methods, assessments, and curriculum requirements for Program Descriptions.

The CVS works to maintain current Program Description VLOs through its CVS AA - Tool. Working with outdated Program Descriptions VLOs can be complex, so colleges are encouraged submit their updated VLOs to CVS via email for their review and revision. This allows CVS to update the tool and provide colleges with access to the most current versions.



CVS Process Overview

All Submissions to CVS, whether formal or informal, Proposals or Modifications undergo a thorough review to ensure that programs meet or exceed the expectations and requirements set out in government policy. This includes the [Minister's Binding Policy Directive - Framework for Programs of Instruction](#) (which includes the elements of the OQF) and [Minister's Binding Policy Directive - Admissions Criteria](#).

The validation process can involve multiple iterations of a program submission. The CVS Team and college personnel collaborate to refine and revise submissions before validation. The review and feedback process is guided by outcomes-based education (OBE) principles.

Validation (Formal Review)

1. **New Program Proposal:**
 - a. Validation is necessary for **new** Ontario College Certificates (OCC) (including OCC Apprenticeships), Ontario College Diplomas (OCD), Ontario College Advanced Diplomas (OCAD), and Ontario College Graduate Certificates (OCGC), regardless of the program funding source.
2. **Program Modification.**
 - a. Validation is required for Modification to **existing** Ontario College Certificates (OCC) (including OCC Apprenticeships), Ontario College Diplomas (OCD), Ontario College Advanced Diplomas (OCAD), or Ontario College Graduate Certificates (OCGC), regardless of the program's funding source. Different types of program Modifications require CVS Validation, MCU approval, or both (see [Table 2](#) below). Colleges can contact CVS and/or MCU staff to clarify the type of program Modification and confirm the required Validation/approval steps.

Table 2. Type of Program Modification

Type of Modification	CVS Validation	MCU Approval
Program Title (requires submission of updated VLOs)	✓	✓
Program Content: <i>greater than 25%</i> change in vocational learning outcomes theme/dimension (intent)	✓	✓
Funding Status: Validation for funded version of an existing, non-funded program	✓	✓
Funding Status: Validation for non-funded version of an existing, funded program	✓	⁶
System-Level Admission Requirements	✓	✓
Program Length or Total Number of Hours: <i>greater than 25%</i> change in program length or total number of hours		✓
Instructional Settings: <i>greater than 25%</i> change in instructional settings		✓

Informal Reviews

The purpose of an informal review is to seek guidance and feedback on the content of a program Submission, more precisely any Modification to VLOs in a new Proposal or program Modification. Refer to the Submission Method [Table 3](#) as a guide.

The feedback provided during an informal review is based only on the information provided at the time of the informal Submission. Additional recommendations or feedback may be provided by CVS at the time of formal Submission.

Formal and Informal Review Submission Overview

There are two ways to submit new program Proposals and program Modification for Validation and review:

1. [CVS AA - Tool \(online\)](#)
2. [Email the CVS Template for Informal Review](#)

The table below summarizes the method for Submission depending on the request and the type of feedback (formal or informal). New programs that must undergo an informal review, will need to be entered in the CVS AA- Tool formally for Validation.

⁶ Validations that do not require Ministry approval are sent by CVS to the Ministry for information only.

Table 3. Submission Method

		Mapped to a Program Standard	Mapped to a Program Description	Submit by email using the Informal Review Template	Submit via CVS AA Tool (Online)
Program Modification, VLO Updates, and Title Modification	Program validated before 2018	✓		✓	✓ Only for title modification
	Program validated before 2018		✓	✓	✓ Only for title modification
	Program validated after May 2018	✓			✓
	Program validated after May 2018		✓	✓ Required informal review prior to the CVS AA Tool Submission	✓
New Program	New Program Proposal	✓			✓
	New Program Proposal		✓	✓ Required informal review prior to the CVS AA Tool Submission	✓

[CVS Template for Informal Review](#) email to cvcs@ocqas.org

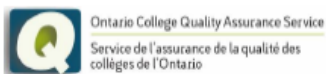
Submission Output (Communication & Documentation)

Formal and informal program Submissions are reviewed by at least two CVS Team members to ensure consistency. CVS guarantees a response to a Submission within 15 working days.

After the CVS Team reviews a formal or informal Submission, they will respond to the college using the same method used for the Submission. If the Submission was sent through the [CVS AA - Tool](#), a response will be sent through the tool; if the Submission was sent by email, a response will be sent by email. Depending on the nature of the Submission, there may be several revisions between CVS and the college. Typically, there are 1–4 iterative revisions between initial Submission and Validation.

Informal Review Output

When an informal review concludes and CVS determines that a program is ready for formal submission, CVS will maintain its decision for up to three months from the date of agreement (for the parts of the submission that were reviewed). If the formal review leading to validation is not submitted within this timeframe, an additional informal review might be required. CVS's



perspective might have changed if another college submitted a program for validation since the informal review concluded, using the same MTCU code.

Formal Review Output

When a formal review occurs and the program is validated, a Validation Decision Letter and Program Application Document are emailed to the college and the Ministry of Colleges and Universities (MCU).

If the college plans to seek MCU funding approval, it must submit the Validation Decision Letter, the Program Application document, and all other required documents directly to the Colleges Unit using the Program Funding Approvals and Administration Module (PFAAM) to complete the funding approval request.

MCU requires additional information beyond what is required by CVS, including:

- The Board Attestation form, signed by the college president
- The Program Delivery Information (PDI)

New Program Proposals

For new program Proposals, colleges are required to provide the following information. This list is organized in the same order that sections appear in the [CVS AA - Tool](#):

1. Basic Information
 - a. MTCU Code Selection
 - b. Program Title
 - c. Credential Level
 - d. Funding Request/Type
2. Program Description
 - a. Program Purpose
 - b. Admission Requirements
 - c. Occupational Areas
 - d. Laddering Opportunities
3. Program VLOs
4. Program Curriculum
5. VLO Mapping
6. EES Mapping (where applicable)
7. Certification
8. Contact Information



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[Appendix A - New Program Proposal Considerations](#) and [Appendix B – CVS New Program Proposal Checklist](#) are useful resources that provide guidance on the required information for each component of the Proposal. Please note the checklist is not submitted to CVS.

Steps for New Program Proposal Submissions

Note: Informal reviews are required for New Programs that are:

- mapped to two MTCU codes (Appendix C provides a sample Alignment Exercise using two MTCU codes)
- aligned to Program Descriptions

Complete all applicable sections of the [CVS Template for Informal Review](#) and email to cvs@ocqas.org

The steps to complete a new program Proposal via the CVS AA - Tool are as follows:

1. **Search for and select the MTCU code that best aligns with your proposed new program.**
2. **Complete the Basic Information section.**
 - a. Enter the proposed title of the new program. Ensure compliance with the *CVS Titling Protocols*. For new program Proposals, colleges are encouraged to reach out to CVS directly for feedback on optional titles and title modifiers to be selected.
 - i. Select the Credential Level for the new program.
 - ii. Identify if the new program Proposal will or not be seeking funding.
 - iii. Colleges that want to validate the same program as both funded and non-funded must first receive validation for one funding type before submitting the other for validation.
3. **Complete the Program Description section.**
 - a. Enter the proposed **program purpose or description**. This should be written to help students understand the program and determine if it meets their goals.
 - b. Colleges are required to use the Minister's Binding Policy Directive-Admissions Criteria to determine the system-level **admission requirements** associated with the credential. Subsequently, colleges can add program-specific and/or oversubscribed requirements.
 - c. Enter and explain related **occupational areas** associated with the proposed program. Include the associated/relevant NOC code(s), a connection to the field(s) of practice (i.e., where do people find jobs), and labour market data (i.e., expected job prospects, statistics).



Important Note from the Ministry on January 26, 2023

As you may know, every ten years, the National Occupational Classification (NOC) undergoes a major structural revision whereby the framework of the Classification and the existing occupational groups are reviewed. The release of the 2021 NOC is the product of this 10-year cycle.

As ministry staff indicated during this week's HQM committee meeting, the PFAAM system does not currently allow for 2021 NOC to be included as part of a college Submission. While the ministry works towards updating PFAAM, they have asked that college staff continue to input NOC 2016 codes into PFAAM. In addition, they are also requesting that the 2021 NOC codes be included in the CVS description documents. Colleagues at OCQAS are aware of this request as well. ([link to 2021 NOC Codes](#))

- d. Enter and explain **laddering opportunities**. Laddering opportunities should include both pathways **into** and **out** of the program and should align with program-specific admission requirements, where they exist.

4. Complete the Program Vocational Learning Outcomes section.

5. Enter the program VLOs based on a completed VLO Alignment Exercise. See Appendix C for examples.

6. VLOs for a Program Standard cannot be changed, but additional VLOs can be added. A minimum of 2 additional VLOs are required if there is a title modifier included in the proposed title.

- a. See Appendix D for adding VLOs to proposed programs with title modifiers.

7. VLOs for a Program Description may be modified or removed using the following process:

- a. Select whether the proposed program will use the base VLO, propose a new VLO, or not include the original VLO.
- b. For proposed new VLOs, enter a rationale as to how the proposed VLO differs and aligns with the base VLO.
- c. Enter a rationale when a base VLO is not included.

Note: CVS will support colleges in the writing of institutional VLOs but these are not to be included in the CVS AA Tool for validation.

8. Complete the Program Curriculum section.

- a. Enter the proposed program's curriculum. Each course must be listed and include the following information: semester number, a unique course code, number of hours (total), course title, and course description.
- b. Use the MBPD-FPI or Table 1 to determine an appropriate number of hours and semesters for the chosen credential.
- c. Total program hours must be within +/-10% of the listed hour range on the OQF (see Table 1 for credential program hours). Total hours per semester are typically 300–350 +/-10%, though some exceptions may apply in consultation with CVS.

9. Experiential Learning



- a. Ministry definition: Experiential learning (EL) is an educational activity facilitated and supported by a college through which students learn while doing. Students participate in workplaces or simulated workplaces, where they are exposed to authentic demands and expectations. The goal of an EL experience is to improve students' employability and interpersonal skills and to support their transition to the workforce.
- b. Courses identified as Experiential Learning (EL) require that the student is practicing the skills that the graduate will need in the workplace, without instruction. If a faculty member is assigned to an EL course, it would be expected that they could coach and provide feedback to the learners, but they would not instruct/teach new skills in an EL course.
- c. College programs include important hands-on components within courses that support student learning through practice. These activities can include labs, simulations, case studies and many other practical applications. These are not what is referred to as an Experiential Learning course according to the Ministry definition.
- d. CVS does not record or require the identification of instructional settings. This is only recorded in the PFAAM submission to the Ministry. Practice components, that are not considered Experiential Learning, can be identified in the Program Delivery Information form which informs the Ministry decisions.
- e. Quick question reference guide:

If you answer YES to one of the following questions, the course is most likely NOT an EL.	If you answer YES to this question, the course can be identified as an EL
Will theory be included in this course?	Does this course allow students to use the knowledge and skills acquired to practice the vocational learning outcomes in preparation for employment with minimal involvement from faculty?
Will the faculty teach new skills in this course?	

10. Complete the VLO Mapping.

- a. Each core course must be mapped to at least one VLO unless it is a general education course or elective. Should an elective course be mapped, the college accepts the responsibility to ensure that the VLO is in fact, assessed.
- b. Each VLO must be mapped to a minimum of two courses to ensure students have a reasonable opportunity to reliably demonstrate their achievement of each VLO.

11. Complete the EES Mapping.

- a. Each EES must be mapped to a minimum of two courses to ensure students have a reasonable opportunity to reliably demonstrate their achievement of each EES. To



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avoid over mapping, only select the courses where the EES are explicitly taught and assessed.

- b. Mapping to EESs is not required for Ontario College Graduate Certificate programs.

12. Complete the Certification section.

- a. Select if certification/accreditation is required by the vocation. If certification/accreditation is required, select one of the following:
 - i. There is a legislative requirement that program graduates must be certified or licensed by a regulatory authority to practice or work in the occupation and this certification is being sought; or,
 - ii. There is a voluntary (i.e., not required by legislation) licensing or certification for entry-to-practice in the profession or trade and that voluntary recognition of a regulatory authority is being/not being sought.

13. College Contact section

- a. The person responsible for drafting the program Proposal Submission will automatically show as the contact person in the CVS AA - Tool.

14. Submit

- a. To submit the new program Proposal for Validation, click 'Submit.'
- b. To submit the new program Proposal for review, click "Request Feedback
- c. The college contact will receive an email confirmation of the Submission.



Program Modifications

Steps for Program Title Modifications

Colleges can request to modify a program title or add a title modifier for alignment with current nomenclature, emerging specializations, or changes in program content. CVS Validation is required for all modifications.

Steps:

1. **Review MCU Funding Letter:** Check Appendix A, Standard Terms and Conditions of College Program Funding Approval Review, to confirm MCU requirements for program title Modifications.
2. **Check CVS Titling Protocols:** Ensure compliance with CVS protocols.
3. **Align VLOs:** Update VLOs as necessary.
Note: Title Modifications require updates/changes to VLOs (e.g., adding a modifier requires at least two new VLOs).
4. **Get PAC Endorsement:** Secure approval from the Program Advisory Committee.
5. **Submit Modification Request:** according to the method in [Table 3](#) based on the program's original Validation date.
6. **Submit to MCU:** After receiving the CVS Validation letter, submit the validated title to MCU via the PFAAM system.

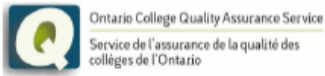
Note: If a Program Standard update includes a title change, a separate modification request to CVS is not needed unless specified in the MCU release memorandum. Instructions for appealing a new title are included in the memorandum.

Steps to Submit a Program Title Modification on the CVS AA - Tool

The process differs depending on the program's original Validation date.

For Programs Validated after May 2018:

1. Find the Validated program on the [CVS AA - Tool](#).
2. Select "Titling Modification" function and complete the appropriate section(s).
3. Clearly outline the rationale for the proposed Modification in the "Comments" section and click "Request Feedback" or the 'Submit' tab in the tool. An email confirmation will be sent to the college contact upon Submission.



For Programs Validated before May 2018:

1. Through Browse MTCU Codes verify if the program being modified is in the list
 - a. if so, select it
 - b. if not, select a program with the same MTCU code as the program being modified
2. Click 'Title modification – program validated prior to May 2018'
3. Complete the appropriate section(s).
4. Click "Request Feedback" or the 'Submit' tab in the tool. An email confirmation will be sent to the college contact upon Submission.

Steps for Program Content Modifications

Colleges can request modifications to program content to ensure it remains current and reflects changes in specialization. These changes often entail vocational learning outcomes but may also include courses, hours, certifications, etc.

1. **Review MCU Funding Letter:** Check Appendix A, Standard Terms and Conditions of College Program Funding Approval Review, to confirm MCU requirements for program Modifications.
2. **Confirm Scope:** Ensure proposed modifications to vocational learning outcomes meet the 25% threshold for a formal submission.
3. **Title Modification Check:** Determine if the changes require a program title modification. If so, refer to the Program Title Modification process. Ensure alignment between VLOs and the program title.
4. **Submit Modification Request:** If no title change is needed, submit the request as directed in [Table 3](#), based on the program's original validation date.
5. **Submit to MCU:** After receiving the CVS validation letter, submit the validated modification to MCU via the PFAAM system.

Steps for Funding Status Modification

Modifying "only" the Funding Status of an Existing Program

Colleges can request to create a different funding status of an existing program.

1. Submit Modification Request: Follow the method of submission in [Table 3](#), based on the program's original Validation date.
2. Submit for Approval: After receiving the CVS Validation letter, if the new program requires funding Request for Approval for Funding to MCU via the PFAAM system.



Steps for Admission Requirement Modifications

College-Level Modifications

1. **Document Evidence and Rationale:** Provide documented evidence and rationale for the change, typically following a formal program review.
2. **Consultation:** Consult with the Registrar and consider the principles of equitable access in the PSE system.

System-Level Modifications

1. **Standards Compliance:** Ensure modifications meet MCU standards as outlined in the Minister's Binding Policy Directive -Admissions Criteria.
2. **Justification:** Provide strong justification for more stringent requirements, such as professional or regulatory body needs.
3. **Reporting:** Report changes to the MCU via CVS, primarily relevant for OCGC credentials.
4. **Submission:** Follow the method in [Table 3](#), based on the program's original validation date.

Program-Level Admission Requirement Modifications

Colleges set program-level admission requirements to ensure students have the necessary knowledge and skills for success.

Reporting Modifications:

- **More Stringent Requirements:** Report to MCU via CVS. For example, adding supplemental information (e.g., interview, portfolio) in an oversubscribed program.
- **Less Stringent Requirements:** No need to report to MCU or CVS.
- **Submission:** Follow the method in [Table 3](#), based on the program's original validation date.

Steps to Submit a Program Modification on the CVS Tool

The process to submit a program Modification request differs depending on the program's original Validation date.

For Programs Validated after May 2018:

1. Find the Validated program on the [CVS AA - Tool](#).
2. Select "Program Modification" function and complete the appropriate section(s).



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3. Clearly outline the rationale for the proposed Modification in the “Comments” section and click “Request Feedback” or the ‘Submit’ tab in the tool. An email confirmation will be sent to the college contact upon Submission.

For Programs Validated before May 2018:

1. Program Modifications should be submitted via email:
2. Complete all applicable sections of the most recent *CVS Template for Informal Review* and email to cvs@ocqas.org.

Submission Withdrawals

Colleges can withdraw a CVS Submission anytime before CVS Validation is received. There are two methods:

1. **Email:** Notify CVS via email.
2. **CVS AA - Tool:** Log in to the CVS AA - Tool and delete the Submission.

Resources and Support

The OCQAS Management Board requires individuals preparing program Submissions for Validation to complete basic CVS training before submitting a Proposal.

CVS Training

Prior to submitting, Individuals preparing program Submissions must complete at a minimum :

- CVS Basics **and** CVS Basics, part 2
- Writing and Updating VLOs training or the [Writing Vocational Learning Outcomes](#) YouTube Video

Training is open to all, new and experienced. For information on training scheduled and for personalized sessions, email cvs@ocqas.org.

Note: To receive updates, join the CVS email list by contacting cvs@ocqas.org.

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Appendix A: New Program Proposal Considerations

MTCU Code Selection and Alignment

Choosing the right MTCU code is crucial for a new program proposal as it sets the foundation for all program components. When selecting an MTCU code, consider:

- **Existing Programs:** Look at the nature of programs under that code (e.g., title, instructional settings, duration, tuition limits, program weight, and funding unit).
- **Vocational Learning Outcomes (VLO):** Ensure the code aligns with the VLOs of the new program being developed.

For an example of mapping to an MTCU code, see [Appendix C](#).

Note on Retired Codes: Retired MTCU codes are marked with an '*' in the 'Browse MTCU Codes' section of the CVS AA - Tool. Do not use retired codes for new programs unless it is the only and closest match.

Important: The Ministry's funding review may assign a different MTCU code during the program approval process, as it does not include the same elements as CVS validation.

Aligning to More Than One MTCU Code

Overview: New programs aligning to two MTCU codes may take longer to process as the Ministry must review VLOs, assign an MTCU code, and determine program weight and funding.

Key Points:

- **Showcasing Distinctiveness:** Programs needing a new MTCU code should map to two MTCU codes to show uniqueness and differentiation.
- **Rationale:** Clearly justify the selection of each MTCU code.

Guidance from CVS is necessary for submissions involving two codes. An informal review via email is required to show alignment to each code.

Requirements for Aligning to Two MTCU Codes:

- **Align VLOs:** Match each proposed VLO to the related VLO in existing Program Descriptions/Standards, capturing the intent where relevant.
- **Justify Exclusions:** If a VLO is not used, leave it blank and provide a rationale.
- **Numbering:** Ensure proposed VLOs are appropriately numbered.

Post-Informal Review Process:

CVS reviews the final alignment and provides guidance on which code to use for the CVS AA-Tool submission.

The CVS Team annotates in the validation, the percentage of VLOs aligned to each MTCU code.

Example Validation Rationale: “Well-developed program; mapped to two MTCU Codes at the right credential and field of practice. 43% of Proposed Program VLOs align to MTCU Code 71010 and 57% to 72020.”

Note: Colleges should add the rationale to PFAAM when submitting a program for funding.

Once validated, CVS informs the Ministry. It is then up to the Ministry to consider the information provided by CVS and create a new MTCU code and define funding parameters (program weight and funding unit).

Aligning to the Same Occupational Field but Different Credential

If an MTCU code for a specific credential type is unavailable, use the MTCU code for a different credential type in the same field of study. This can be done using MTCU code families.

MTCU Code Structure:

- **First Digit:** Indicates the credential type.
- **Last Four Digits:** Represent the vocational area (code family).

Programs in adjacent code families have similar occupational areas.

5-digit MTCU code	Credential	Code family (vocational area)
<u>70223</u>	Graduate certificate for Human Resources Management	The <u>0223</u> code relates to the field of Human Resources
<u>60223</u>	Advanced diploma in Business Administration – Human Resources	
<u>50223</u>	Diploma in Business – Human Resources	
<u>40223</u>	Certificate in Human Resources Practices	



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If a diploma does not exist in this field, use the vocational learning outcomes (VLOs) for the advanced diploma or certificate program to complete the Alignment Exercise. Consult CVS if alignment to a different credential level is required.

When mapping to an MTCU code of a different credential, ensure the proposed program VLOs demonstrate the appropriate level of performance. For example, if the proposed program is an OCGC but the MTCU code is for an OCD, the modified VLOs should reflect the depth of an OCGC as outlined in the OQF.

Aligning to Outdated Program Descriptions

CVS has numerous Program Descriptions that serve as guidelines for new program development. These typically include a program purpose, VLOs, and sometimes admission requirements. Although many were created years ago with minimal oversight, they remain the starting point for developing new or similar programs.

Colleges have flexibility in revising these Program Descriptions to meet current needs. When aligning to outdated Program Descriptions:

- **Review** the relevance of the program title.
- **Assess** if the credential offered is appropriate.
- **Update** the program purpose to reflect current and relevant industry needs and graduate expectations.
- **Determine** if the VLOs reflect the skills and knowledge graduates will have upon program completion.
- **Use** the program goals as a starting point for developing clear and concise VLOs.
- **Identify** employment opportunities for graduates and assess labor market demand.

Contact CVS with any questions about the currency of Program Descriptions or Program Standards.

Program Title Selection

Program titles must follow CVS Titling Protocols, whether mapped to a College Program Standard or Program Description.

Title Criteria:

Alignment with MTCU Code Family:

- Use the MTCU's APS Table to check existing titles.
- If an MTCU code has a College Program Standard, the title must match the Standard.



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- If an MTCU code has a Program Description, the title can be changed but should reflect the program focus. Include at least one word from the MTCU code family.

Field of Study :

- Titles should describe a field of study, not a job title (e.g., Mechanical Engineering Technology, not Mechanical Engineering Technologist).

Exclusions:

- Do not include delivery mode or model (e.g., Fast Track, online).
- Do not include language of delivery (e.g., FR, ENG).

Relevance:

- Titles should reflect the program purpose and VLOs.

Title Modifiers:

- A modifier can be added if it aligns with accepted college system nomenclature, agreements, and CVS Titling Protocols.
- Modifiers must be supported by at least two VLOs specific to the modifier.
- The Program Standard represents the minimum provincial requirement for credentials. Colleges can add VLOs to address community needs.

Considerations for Funding Request/Type

OCQAS ensures all programs conform to the Minister's Binding Policy Directive – Framework for Programs of Instruction, regardless of funding source.

Requests for Funding:

- Submit requests to MCU, not CVS.
- Funding is based on program approval process scoring. Contact MCU for details on the approval process.

Considerations for Program Purpose

- **Program Title:** Must match the proposed program title if quoted in the Program Description/Purpose section.
- **Alignment:** Ensure information aligns with other application areas.
- **Relevance:** Clearly reflect current industry needs and the skills, knowledge, and attitudes expected of graduates.

Considerations for Admission Requirements

Admission criteria for Ontario public colleges fall under the CAAT Act (2002) and the Minister's Binding Policy Directive - Admissions Criteria. Admission requirements are established during program development.

Levels of Admission Requirements:

1. System Eligibility
2. Program Eligibility
3. Program Eligibility for Oversubscribed Programs

System-Level Admission Requirements:

Must include relevant system-level requirements verbatim from the Minister's Binding Policy Directive - Admissions Criteria.

- **OCC, OCD, OCAD:** Ontario Secondary School Diploma (OSSD) or equivalent, mature student status.
- **OCGC:** Ontario College Diploma, Advanced Diploma, Degree, or equivalent.

Program-Level Admission Requirements:

- Colleges can add program-specific requirements (courses, language, achievement percentages).
- Consider the necessary educational background, required engagement in pertinent activities, assessment methods, and the relevance of the candidate's experience to the new program.
- Do not include secondary school university preparation courses or Ontario Academic Courses, except for:
 - Collaborative college-university programs.
 - College applied degrees.
- Program-level requirements are added, they do not replace, system-level requirements.
- English language requirements are determined by individual colleges.

Oversubscribed Programs:

- For oversubscribed programs, colleges can introduce program-specific selection criteria.
- Criteria must be fair, objective, and measurable.



Occupational Areas

Occupational Areas define the field of practice and identify labor market demand for a program.

Funding Application Requirements:

- MCU requires information on potential jobs and projected job availability for graduates.
- Include labor market context and statistics in the program proposal, with specific NOC Codes – both 2016 and 2021 are currently required.
- PFAAM Submissions accept up to three NOC Codes per application.

Submission Process:

- CVS ensures colleges provide complete information in the Occupational Areas section to reduce MCU requests for further details.

Note: The Ministry may request additional labor market data during the funding approval process.

Laddering Opportunities

The college system values access and pathways. This section should always consider both the inbound and outbound opportunities for students. An example is provided in Table 4: Laddering Example.

Table 4. Laddering Example

Laddering <u>into</u> Electromechanical Engineering Technology – Power and Control Program (OCAD)	
Completed Credential	Type of Inbound Pathway
Electrical Apprenticeship (OCC)	Apprenticeship → OCAD
Electrical Techniques (OCC)	OCC → OCAD
Electromechanical Engineering Technician (OCD)	OCD → OCAD
Laddering <u>from</u> the Electromechanical Engineering Technology – Power and Control Program (OCAD)	
Completed Credential	Type of Outbound Pathway
Electromechanical Engineering Technology (OCAD)	OCAD → Electrical Apprenticeship
Electromechanical Engineering Technology (OCAD)	OCAD → Degree



Program VLOs

Ontario's colleges must ensure their VLOs align with the MBPDFPI. CVS reviews all VLOs using an outcomes-based credentialing model, influencing curriculum development and program review.

Institutional Learning Outcomes:

- VLOs marked with an '*' in the CVS AA - Tool are institutional learning outcomes.
- Annotate institutional outcomes with an '*' in new program proposals or modifications.
- Do not include institutional outcomes from other colleges in submissions.

Writing VLOs that Align to Program Descriptions:

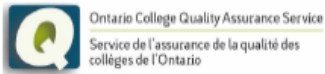
- Use Program Descriptions as a starting point and ensure VLO alignment with the program's theme/dimension.
- Provide a rationale for any base VLOs not included in the new proposal.

Principles of Well-Constructed VLOs:

- Complete the stem: "The graduate has reliably demonstrated the ability to..."
- Describe what learners will know and be able to do upon graduation.
- Integrate knowledge, skills, and attitudes necessary for vocational success.
- Reflect employer expectations and requests in the workplace.
- Align with curriculum activities, resources, and assessments.
- Avoid being too specific to prevent obsolescence.
- Match or exceed the learning level required by the credential.
- Specify vocational or situational applications for EES outcomes.
- Cover themes/dimensions not currently addressed by existing VLOs.
- Are measurable, observable, and action oriented.
- **Include three parts:**
 - **Action Verb:** A description of what the graduate will be able to DO.
 - **Learning/Product:** The task that will be performed by the graduate.
 - **Context/Condition/Criteria:** The context for evaluating the performance.

Writing VLOs that Align to College Program Standards:

- If an MTCU code has a Program Standard, VLOs must match the published standard.
- Additional VLOs can be added to support a title modifier.



- For more information on title modifiers, review the CVS Titling Protocols.

For an example of title modifiers and supporting VLOs, see Appendix D.

Program Curriculum

Course Codes, Titles, and Descriptions

CVS uses course titles and descriptions to assess if a program meets credential level expectations.

Course Descriptions:

- Must be detailed enough for CVS assessment.
- Codes and titles must be unique, even if 'TBA' (e.g., TBA1 – Introduction to Computer Programming).
- Titles and descriptions should align with the program title, and Program Description.
- Descriptions should reflect the VLOs they are mapped to.

General Education Courses:

- Diplomas and Advanced Diplomas must include at least three general education courses.
- General education courses should align with the MBPDFPI.
- General education courses and/or elective courses must be identified in the curriculum section.

Course Hours and Program Duration

Alignment with Existing Programs:

- Course hours and program duration should be like existing programs in the same MTCU code.
- Existing programs set precedents for titles, duration, instructional settings, program weight, and funding unit.
- Co-op courses should be in their own semester.

Program Duration:

- Refer to the MTCU's APS Table and MBPDFPI for acceptable program hours and semesters.
- Meet the minimum requirement of hours per semester as outlined in the MBPDFPI, with a +/- 10% variation accepted for Validation.
- The MBPDFPI averages 300–350 hours per semester.

- Consider the +/- 10% variation at both the semester and program levels to avoid impacting students' OSAP eligibility (e.g., a 600-hour certificate should not be offered over three terms).

Special Considerations for 3- and 4-Semester Ontario College Graduate Certificates (OCGC)

Duration and Hours:

- OCGCs typically require 600–700 hours over two semesters (1 academic year).

Adding a Third Semester:

- **Justification:**
 - Difficult to justify if most programs in the MTCU code are two semesters with a WIL component in the second semester.
 - Justifiable if existing programs are two semesters without a WIL component, provided the third semester does not require Ministry funding (e.g., Co-op).

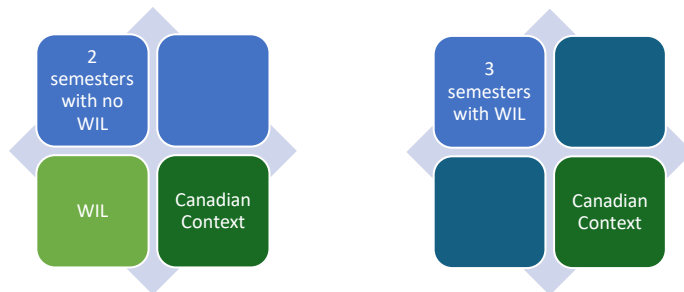
Two-Year (4-Semester) OCGCs:

- **Acceptable if:**
 - The MTCU code includes two-year programs.
 - The existing code lacks a WIL experience, necessitating an additional semester.
 - Student success in a new field requires two years of education at the OCGC level.

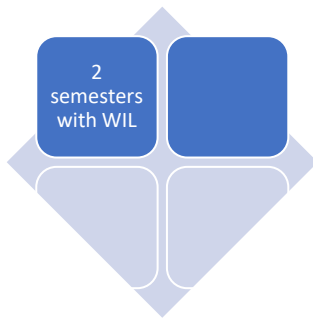
Non-Ministry Funded Programs:

- An additional semester can be added if the existing code does not provide the necessary Canadian context for successful employment.

Examples for a non-funded 4 semester OCGC



Example that cannot be a 4 semester OCGC



VLO Mapping

Program Mapping ensures curriculum alignment with VLOs. When mapping courses to VLOs:

- Map all core courses to at least one VLO.
- Map each VLO to at least two courses to provide multiple demonstration opportunities.
- Ensure course descriptions align with their mapped VLOs.
- Do not map general education (elective) courses to VLOs.
- Map elective, non-general education courses to VLOs if supported by other courses.
- Map Co-op/WIL courses to at least one VLO.

Essential Employability Skills (EES) Mapping

Curriculum in Certificate, Diploma, and Advanced Diploma programs must map to the 11 EES for English colleges and 13 EES for French colleges. Only map courses where EES are explicitly taught and assessed. Each EES must be mapped to at least two courses to ensure graduates can reliably demonstrate EES outcomes. Not all courses need to be mapped to an EES, but all EES must be covered by at least two courses.

Certification/Accreditation

Complete this section by checking indicating the certification/accreditation requirements or by checking “None Exists” for the proposed program. If initiated, submit relevant documentation as an attachment. If a voluntary certification/accreditation exists but is not being sought, provide a description or rationale.



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Appendix B – CVS New Program Proposal Checklist

CVS New Program Proposal Checklist

PROPOSED PROGRAM TITLE			
CREDENTIAL	Choose an item.		
MAPPED TO MTCU CODE(S)		PROGRAM STANDARD?	Choose an item.

BASIC INFORMATION

Program Title	Yes/No	Comments and Resources
If using a Provincial Program Standard:		
The program title is the same as the published Program Standard.		In Focus Resource
If using a Program Description:		
The program title does not describe a specific job or role.		
The program title is reflective of the program focus and would be understood by students, employers and the general public.		
The program title is similar to other programs mapped to the same MTCU code.		
If using a title modifier:		
The title modifier is appropriate and would be understood by students, employers and the general public.		
There are at least 2 additional program Vocational Learning Outcomes (VLOs) to support the modifier.		



PROGRAM DESCRIPTION

Program Purpose	Yes/No	Comments
The program is clearly described for students.		
References to the program title match the title in the Basic Information section.		
The information in this section is representative and aligns with the other areas of the application.		

Admission Requirements	Yes/No	Comments
Admission Requirements retain the language from the Minister's Binding Policy Directive -Admissions Criteria for the chosen credential. (This is specifically detailed under the i in the CVS AA Tool.)		
Program specific criteria are added to the existing system level requirements.		
Are there any language requirements for this program?		

Occupational Areas	Yes/No	Comments
Occupational Areas clearly define the field of practice.		
The information in this section includes expectations for graduates to gain employment including NOC codes (2016 and 2021) and labour market information.		

Laddering Opportunities	Yes/No	Comments
List the programs in your college students could ladder from.		
List the programs in your college graduates could ladder to.		



PROGRAM VOCATIONAL LEARNING OUTCOMES

Program VLOs (VLO)	Yes/No	Comments and Resources
If using a Program Standard		
The VLOs are the same as the published Program Standard. (if using a Program Standard to develop a new unique program, please add a comment to your Submission to this effect).		
If using a Program Description		
The VLOs are mapped to similar program currently in the system.		
The VLOs are mapped and aligned by theme/dimension.		
The VLO language begins with a verb to follow the phrase/stem "The graduate has reliably demonstrated the ability to . . ."		
The following verbs are not measurable and have been avoided: <ul style="list-style-type: none"> • Learn • Demonstrate • Understand • Read 		
VLOs are vocational - they are written similarly to how an employer would ask the graduate to perform in the workplace.		
VLOs are measurable - they describe what the graduate will know or be able to do by the end of the program.		
VLOs are current and relevant to the field of practice.		
VLOs have three parts: 1. Action Verb 2. Learning/Product and 3. Context/Condition/Criteria . These three parts together read well and make sense. There is a connection between the activity (Action Verb), the task performed (Learning/Product) and the outcome (Context/Condition/Criteria).		In Focus Resource



VLOs are not to be too specific to ensure that the references do not become obsolete.		
VLOs are written at the same or a higher level than the credential that is being sought.		
If there is a specific reason to have an EES outcome in the VLOs, the vocational or situational application is specified, i.e., a “communication” outcome is needed as reference to the use of language and / or terminology relevant to the field.		
Have not used VLOs indicated with an ‘*’ (These are institutional learning outcomes and are not part of the VLOs of the Program Standard or Description)		
New VLOs, are not addressing a theme/dimension that is currently covered by an existing VLOs.		

PROGRAM CURRICULUM

PROGRAM DURATION – The Ontario Qualifications Framework stipulates the following credential hour ranges:

- Local Board Certificate = 240 – 500 hours
- Ontario College Certificate = 600 – 700 hours
- Ontario College Diploma = 1,200 – 1,400 hours
- Ontario College Advanced Diplomas = 1,800 – 2,100 hours
- Ontario College Graduate Certificate = 600 – 700 hours

Program Curriculum	Yes/No	Comments
All courses have a unique Course Code.		
The number of semesters is the same as the other programs already under this MTCU code.		
The program hours are not less than 10% below the minimum requirement in the Minister’s Binding Policy Directive - Framework for Programs of Instruction.		



The program hours are not more than 10% above the maximum requirement in the Minister's Binding Policy Directive - Framework for Programs of Instruction		
General Education Courses		
There are at minimum three General Education courses in all OCD and OCAD programs. These are identified in the checkbox.		
Elective General Education courses are identified by the Elective course checkbox.		
Experiential Learning Course		
There is at least one course identified as the Experiential Learning Course, selecting the checkbox and appropriate type of learning.		Experiential Learning Resource

VLO MAPPING

VLO Mapping	Yes/No	Comments
All core courses are mapped to a minimum of 1 VLO.		
Each VLO is mapped against at least 2 courses to ensure that the learner has multiple opportunities to demonstrate that they have met the outcome.		
There is consistency between VLOs and the course descriptions that are mapped to that specific outcome.		

ESSENTIAL EMPLOYABILITY SKILLS (EES) MAPPING

EES Mapping	Yes/No	Comments
There is reasonable assurance that the EES is taught and assessed more than once over the course of the program so the program reliably demonstrates that the graduate will have the ability to achieve the EES		



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outcomes (This does not mean that all courses need to be mapped to an EES). Select only the courses in which the EES are explicitly taught and assessed.		
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CERTIFICATION

Certification	Yes/No	Comments
If there is a legislative requirement or a voluntary opportunity for certification for entry to practice in this field, provide details.		



Appendix C – MTCU Code VLO Alignment Exercises

Example VLO Alignment to One MTCU Code

The bolded words represent the intent of the learning outcome for the purpose of the Alignment Exercise.

MTCU Code A: VLOs	Proposed VLOs	Rationale
1. Develop quality assurance and continuous improvement processes to monitor the operation of the supply chain (from purchasing to shipping)	1. Develop quality assurance and continuous improvement processes to monitor the operation of the supply chain.	No need to explain the supply chain.
2. Analyze law and regulations applicable to food processing and their effects on operational activities in a food manufacturing facility	2. Analyze regulations applicable to food processing and their effects on operational activities in a food manufacturing facility to ensure that the highest standards for product quality are being met.	Revised to answer the question “to what end” which completes the outcome and provides the criteria for the outcome.
3. Select and use appropriate and effective principles and practices of team building and leadership to implement and maintain new procedures and practices in all areas of the manufacturing operation (e.g., food safety, quality assurance, lean manufacturing, total preventative maintenance, continuous improvement)	3. Select and use appropriate and effective principles and practices of team building and leadership to implement and maintain new procedures and practices in all areas of the manufacturing operation.	Removed information in brackets
4. Prepare accurate and relevant production cost charts that include all cost factors (e.g., inputs, direct	4. Prepare accurate and relevant production cost charts that include all cost factors (e.g., inputs, direct and indirect labour,	



and indirect labour, maintenance, QA, warehousing) to support appropriate financial decisions related to plant operations	maintenance, QA, warehousing) to support appropriate financial decisions related to plant operations	
5. Apply recognized principles and industry standards to the systematic analysis of cost of production	n/a	Covered in 4
6. Manage the scope, cost, timing, and quality of a project as defined by project stakeholders	5. Manage the scope, cost, timing, and quality of a project as defined by stakeholders to contribute to the brand reputation and financial success of the business.	Revised to answer the question “to what end” and provides the criteria which completes the outcome.



Example Alignment to Two MTCU Codes

The red text highlights where the alignment exists between the base VLO and the proposed VLO

MTCU Code A - Program Description 1	Proposed VLOs	Rationale
1. Identify, evaluate, and manage relevant data sources to support data analytics and to meet organizational needs.	1. Identify, evaluate, and manage relevant data sources to support data analytics and to meet organizational needs.	
2. Recommend different systems, architectures, and data storage technologies to support data driven solutions.	2. Recommend different systems, architectures, and data storage technologies to support data driven solutions.	
3. Develop and deploy complete Machine Learning/Deep Learning production systems for a variety of industry use cases that meet the needs of a specific operational/business process.	3. Develop and deploy machine learning production systems for a variety of industry use cases that meet the needs of a specific operational/business process.	
4. Assess and apply appropriate mathematical models, algorithms, tools, and frameworks to develop AI-enabled, industry specific solutions	4. Assess and apply appropriate mathematical models, algorithms, tools, and frameworks to develop AI-enabled, industry specific solutions	
5. Design and present A.I. solutions effectively to stakeholders using data visualisations	5. Present information, analysis, reports, and recommendations in a variety of formats to meet the needs of	Reworded to indicate variety of content of presentations and to address the criteria more clearly.



MTCU Code A - Program Description 1	Proposed VLOs	Rationale
	both the audience and operational/project objectives.	
6. Apply legal, ethical, privacy, and security-related standards and considerations in data science projects in a manner that protects privacy and confidentiality, addresses data bias and transparency, and ensures data integrity	6. Incorporate sustainable, economic, ethical, safe, and secure approaches in the design and implementation of projects to ensure stakeholder physical safety and data privacy.	Rewritten to combine MTCU Code B VLO1 which serve our purposes more clearly. Ethics, privacy, and security covered here, but include the integration of sustainable and economic pieces as well.
7. Implement artificial intelligence systems on time and budget using best practices and strategies in design thinking, project management and lifecycle management.	N/A	Project management not a focus of this credential.
MTCU Code B - Program Description 2		
1. Incorporate sustainable, economic, safe, and ethical approaches in the design and implementation of projects.	Same as 6 above.	
2. Solve automated manufacturing problems found in a typical	7. Solve automated manufacturing problems found in a typical industrial	



MTCU Code A - Program Description 1	Proposed VLOs	Rationale
industrial environment by applying engineering principles and decision-making strategies.	environment by applying engineering principles and decision-making strategies.	
3. Analyze and synthesize technical data to develop graphics and related technical documents conforming to engineering standards.	Same as #5 above.	
4. Select and manage appropriate hardware and software for the creation of engineering designs.	N/A	Creation of engineering designs is not part of this credential.
5. Identify and utilize manufacturing processes, rapid prototyping methods, and automation technologies to optimize product development.	8. Identify and utilize manufacturing processes, rapid prototyping methods, and automation technologies to optimize product development.	
6. Configure, control, monitor, and evaluate automated manufacturing components and systems to improve automated manufacturing systems and maintain quality control measures in response to industry needs and requirements.	9. Configure, control, monitor, and evaluate automated manufacturing components and systems to meet industry needs and requirements.	
7. Exercise professionalism,	10. Exercise professionalism, leadership, and effective	



MTCU Code A - Program Description 1	Proposed VLOs	Rationale
leadership, and effective communication in an industrial work setting to increase overall productivity and support a positive work environment.	communication in an industrial work setting to increase overall productivity and support a positive work environment	
8. Ensure automation equipment is in compliance with established operating procedures, and occupational health and safety regulations.	11. Verify that automation equipment is in compliance with established operating procedures, and occupational health and safety regulations.	



Appendix D – Adding VLOs

Example to Support Title Modifier

College Program Standard Title: Chemical Laboratory Technology, **MTCU Code:** 61302

Proposed Title: Chemical Laboratory Technology – Food Science

VLO 1–10 are from Program Standard

1. Research, determine and perform procedures related to the purification, analysis and synthesis of chemical compounds and samples.
2. Perform, coordinate, and implement laboratory procedures to conduct quantitative and qualitative analyses and tests.
3. Select, test, calibrate, troubleshoot, and evaluate chemical analysis instruments and equipment to assure accurate results.
4. Implement, coordinate, and evaluate quality assurance and quality control procedures, including statistical analysis, in accordance with international and industry standards and government regulations.
5. Complete, monitor and manage chemical laboratory tasks and projects using computer and information technologies.
6. Participate in health and safety practices and initiatives in the chemical laboratory to ensure a safe environment for oneself and others.
7. Promote the efficient, sustainable, and ethical use of chemical laboratory resources through the application and analysis of sustainability practices.
8. Communicate laboratory data, results, analysis and recommendations through the preparation, interpretation, and presentation of technical reports.
9. Collaborate with others and work in chemical laboratory teams to complete laboratory tasks and projects.
10. Develop strategies for ongoing professional development to enhance competence as a chemical laboratory technologist.

Additional VLOs to support the Title Modifier:

1. Interpret results using microbiological techniques to ensure quality assurance and quality control in the food industry.
2. Develop food products using principles of food safety and food regulations for commercial use.
3. Support continuous improvement strategies using safe food principles including Good Manufacturing Practices (GMPs), Good Laboratory Practices (GLPs), Hazard Analysis and Critical Control Points (HACCP), Codex Alimentarius for inspecting food production processes.



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