

# Refrigeration and Air Conditioning Mechanic

## Transition Plan

# Table of Contents

Abbreviations .....	3
Harmonization Overview .....	4
Transition Planning Process .....	5
Training Providers .....	6
The Gaps .....	7
Transition Plan .....	8
Pathways for Current Apprentices (Summary) .....	9
Total Training Hours for Apprenticeship Pathway .....	10
Total Training Hours for Challenge Pathway .....	11
Gasfitter B Licensing Changes in BC.....	12
Exams .....	13
Appendix A: Details of Gaps.....	14
Appendix B: Reporting Completion of Gap Training.....	16
Appendix C: Registering Students and Identifying Student Training Credit .....	17
Appendix D: Dual Streaming .....	18
Appendix E: Communication Plan for Transition .....	19
Appendix F: Transition Map.....	20

## Abbreviations

<b>CCDA</b>	Canadian Council of Directors of Apprenticeship
<b>CL</b>	Current level
<b>DA</b>	Direct Access (ITA's registration system)
<b>ER</b>	Employer sponsor
<b>HL</b>	Harmonized level
<b>IPSE</b>	Interprovincial Red Seal Exam
<b>NOA</b>	Red Seal National Occupational Analysis
<b>RACM</b>	Refrigeration and Air Conditioning Mechanic
<b>RSOS</b>	Red Seal Occupational Standard; replaces NOA
<b>SLE</b>	Standardized Level Exam
<b>TP</b>	Training provider
<b>TT</b>	Technical training
<b>TW</b>	Trade worker
<b>WBT</b>	Work-based training

## Harmonization Overview

The Canadian Council of Directors of Apprenticeship (CCDA) is responsible for the Red Seal Program, which develops common interprovincial standards and examinations. The CCDA is undertaking the Harmonization Initiative in 30 Red Seal trades by 2020. British Columbia is an active participant in this initiative.

The goal is to substantively align apprenticeship systems across Canada by making apprenticeship training requirements more consistent in the Red Seal trades.

### Harmonization Priorities

1. Use of Red Seal **trade name**
2. Consistent **total training hours** (in-school and on-the-job)
3. Same number of **training levels**
4. Consistent **sequencing** of training content, including use of most recent Red Seal Occupational Standard (RSOS).

### HARMONIZATION: What's changing for

#### Refrigeration and Air Conditioning Mechanic (Refrigeration Mechanic)

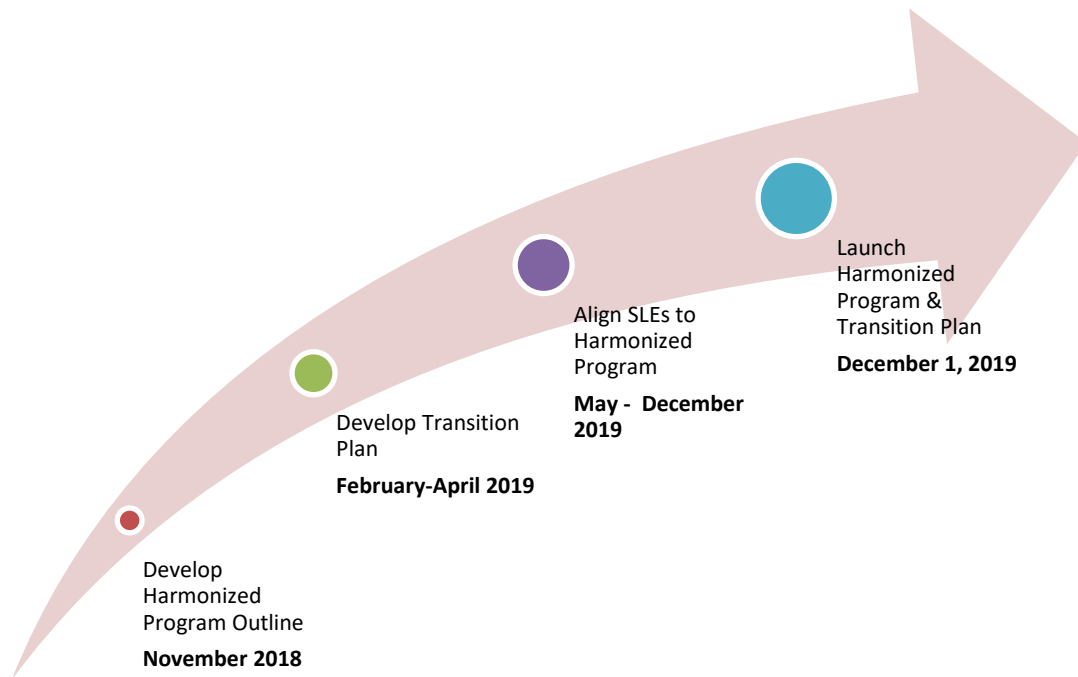
	Changing in BC?	What will it be?
<b>TRADE NAME</b>	<b>YES</b>	<b>Refrigeration and Air Conditioning Mechanic</b>
<b>NUMBER OF TRAINING LEVELS</b>	<b>NO</b>	<b>4</b>
<b>TOTAL HOURS</b> technical + work-based training	<b>YES</b>	<b>7,200 hours</b> Decrease by 860
<b>TRAINING SEQUENCE</b> order of subjects taught	<b>YES</b>	<b>Some changes to sequence</b>

## Transition Planning Process

The re-sequencing of the Refrigeration and Air Conditioning Mechanic Program (RACM) program through the Harmonization Initiative has resulted in some changes to the sequencing of technical training.

We consulted with the public and private post-secondary training providers that deliver the Refrigeration and Air Conditioning Mechanic program and have considered the input of our internal partners. We evaluated a few scenarios, and the transition plan outlined in this document was identified as the best option. We have also ensured that there are options for all current apprentices to complete their apprenticeship.

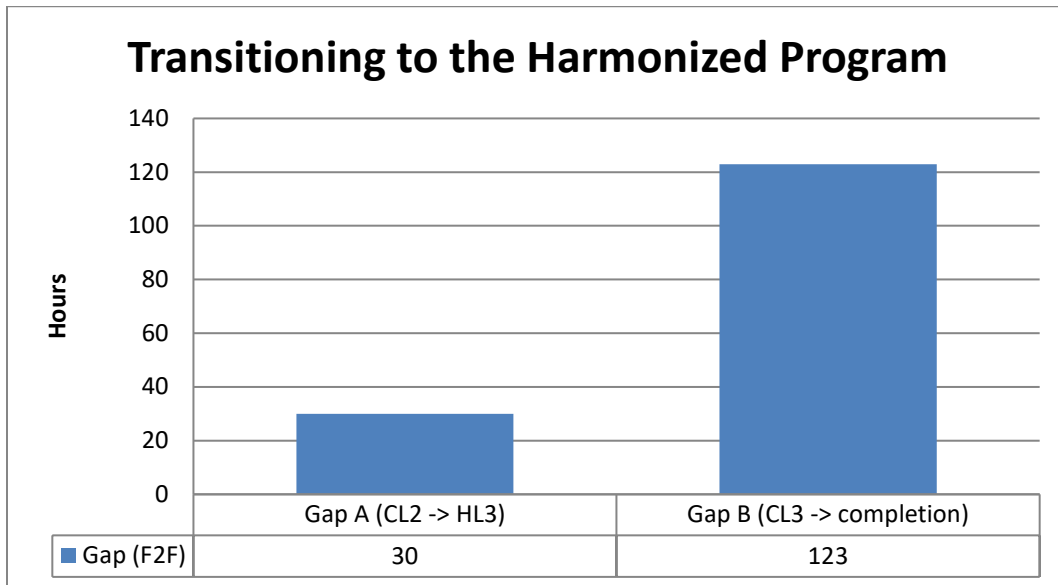
## Program Development and Transition Planning 2017-2018



### Training Providers (6)

British Columbia Institute of Technology (BCIT)  
Camosun College  
Okanagan College  
Refrigeration Training Institute (RTI)  
Thompson Rivers University (TRU)  
Vancouver Island University (VIU)

## The Gaps



**Gap A (CL2→HL3)** applies to a student who has completed current Level 2 and is moving into harmonized level 3.

**Gap B (CL3→HL4)** applies to a student who has completed current levels 1 - 3. The gap here is approximately **123 hours**. It is recommended that level 4 proceed as a dual stream.

**Gap** is an estimate of the hours of face-to-face instruction a student would need to complete the missing competencies if they transition to the harmonized program.

**Note:** If a TW completes their training in the current program, they will not face a gap in their training. Gaps and overlaps only apply to apprentices who miss their opportunity to train out of the current program.

**\*\*See Appendix A: Details of Gaps for a list of the missing competencies\*\***

**\*\*See Appendix B: Reporting Completion of Gap Training for information on reporting gap training\*\***

## Transition Plan

Implementation Timelines	
Level 1/Foundation/Youth	December 1, 2019
Level 2	December 1, 2019
Level 3	December 1, 2020
Level 4	December 1, 2021

<b>Year 0</b> 18/19	CL1	CL2	CL3	CL4
<b>Year 1</b> 19/20	HL1	HL2	CL3	CL4
<b>Year 2</b> 20/21	HL1	HL2	<div style="background-color: #f4a460; padding: 2px;">HL3</div> <div style="background-color: #c8e6c9; padding: 2px;">Gap training 30 hours</div>	CL4
<b>Year 3</b> 21/22	HL1	HL2	<div style="background-color: #f4a460; padding: 2px;">HL3</div> <div style="background-color: #c8e6c9; padding: 2px;">Gap training 30 hours</div>	<div style="background-color: #f4a460; padding: 2px;">HL4</div> <div style="background-color: #c8e6c9; padding: 2px;">CL4</div>
<b>Year 4</b> 22/23	HL1	HL2	HL3	HL4

### Risks

Current apprentices miss the deadlines to train out of Current Program.

Apprentices may take the wrong course (i.e. a CL3 student takes HL4)

Apprentices who take HL2 or HL3 must wait until HL3 or HL4 is implemented before continuing their training.

### Mitigation Strategies

Have them repeat the level in the Harmonized Program

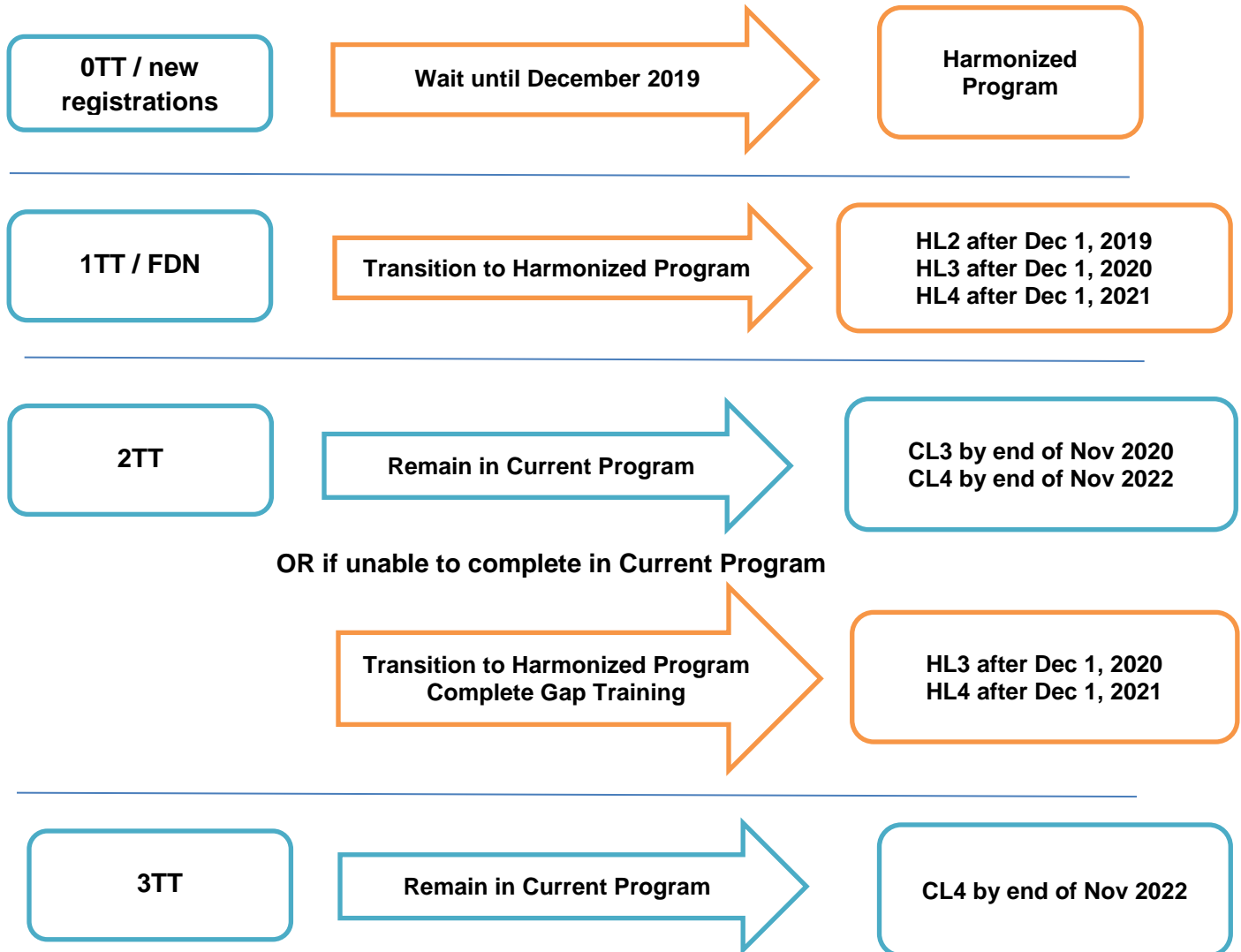
Ensure that apprentices are registered for the correct course. Check in DA to verify whether apprentice is in the harmonized (HL) or current program (CL).

Communicate with TW and ER that the apprentice can not take CL3/CL4; they must wait for HL3/HL4 to be implemented.

*For information on dual streaming, please see Appendix D*



## Pathways for Current Apprentices (Summary)



## Total Training Hours for Apprenticeship Pathway

The following changes to training time for RACM will come into effect according to the implementation timelines beginning **December 1, 2019**:

- Increased technical training hours to accommodate content added to the Gasfitter – Class B training (**increase of 30 hours at Level 2 and 60 hours at Level 3 and 4**)
- Decreased work-based training (WBT) hours to align with the harmonized standard of 7,200 hours of total training (**decrease of 1,010 hours**)

### Implementation Timelines:

HL1 and HL2– December 1, 2019

HL3 – December 1, 2020

HL4 – December 1, 2021

Please note that the increase of technical training hours applies only to Harmonized Levels.

### Apprenticeship Pathway

Current Program	Hours
Technical Training	840
Level 1 = 180 hours	
Level 2 = 180 hours	
Level 3 = 240 hours	
Level 4 = 240 hours	
Work-based Training Hours	7,220
<b>Current Total Training Hours</b>	<b>8,060</b>

Harmonized Program	Hours
Technical Training	990
Level 1 = 180 hours	
<b>Level 2 = 210 hours</b>	
<b>Level 3 = 300 hours</b>	
<b>Level 4 = 300 hours</b>	
Work-based Training Hours <sup>1</sup>	6,210
<b>Harmonized Total Training Hours</b>	<b>7,200</b>

<sup>1</sup>Work Based Training Hours **do not** include the additional 1,500 hours required for the Gasfitter – Class B license from Technical Safety BC.

# Total Training Hours for Challenge Pathway

## Challenge Pathway and Sign-off Authority

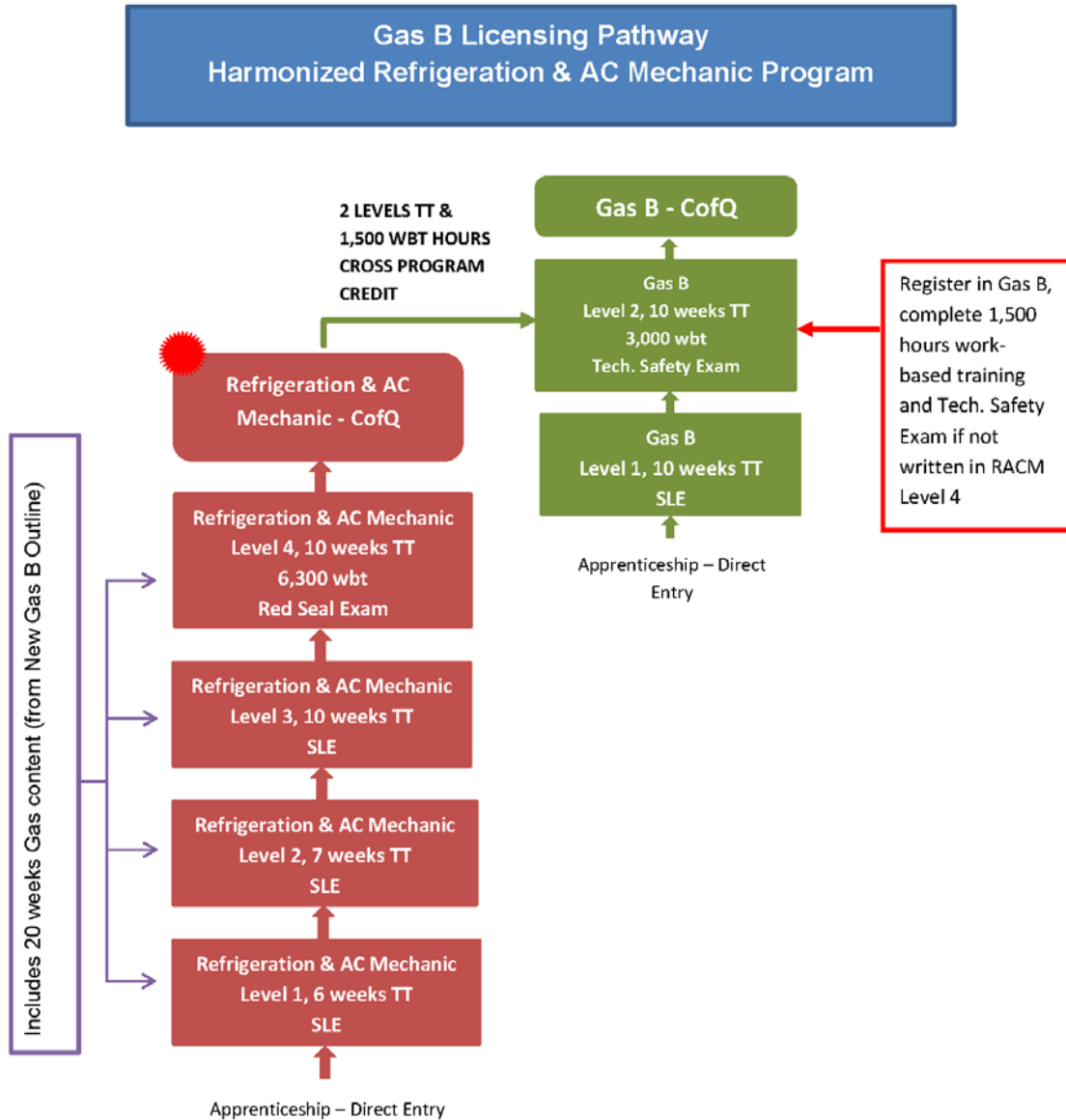
<b>Current Program</b>	<b>Hours</b>
Work-based Training Hours	7,220
ITA Formula for Calculating Challenge WBT	X 1.5
<b>Current Challenge WBT Hours</b>	<b>10,830</b>

<b>Harmonized Program</b>	<b>Hours</b>
Harmonized Work-based Training Hours	6,210
ITA Formula for Calculating Challenge WBT	X 1.5
<b>Harmonized Challenge WBT Hours</b>	<b>9,315</b>

**NOTE:** If TWs complete in current program, the WBT hours for that program will apply. If they transition, they will have to complete the WBT hours for the harmonized program.

## Gasfitter B Licensing Changes in BC

Refrigeration apprentices completing the Harmonized Refrigeration and AC Mechanic program will be granted Level 1 and 2 Gasfitter – Class B Technical Training and 1,500 work-based training hours toward a Gasfitter – Class B apprenticeship. To obtain the Gasfitter – Class B license apprentices will need to complete the remaining 1,500 WBT hours and write the Technical Safety BC exam if they have not written it in Level 4 of the Refrigeration program.



## Exams

### Exams for the Harmonized Program

Exam	Exam Development	Exam Launch
HL1 – HL2	Summer/Fall 2019	Summer - Fall 2020
HL3	Summer/Fall 2019	Summer - Fall 2021

The Harmonized SLEs will need to be piloted with the first cohort of apprentices that complete Harmonized Levels 1 - 3 and then further validated by peer review. This means the Harmonized SLEs will not launch before summer 2020. For any Harmonized classes that finish before the launch of the Harmonized SLE, the final mark for the level will be based solely on in-class assessments. **An OPSN will be sent to announce the launch of the Harmonized SLEs.**

The SLEs for CL3 will be available for any CL3 class. It will be crucial to ensure that classes are writing the exam that matches the course they have completed. ***When requesting an exam, please indicate whether it is for a harmonized (HL) or current (CL) class.*** Training providers are encouraged to identify courses using the Trades Training BC (TTBC) session ID to aid in confirmation of exam type. ITA will invigilate these exams unless other arrangements are organized between ITA's Exam Department and the training provider.

**Please see Appendix C for information regarding registering students and student training credit.**

## Appendix A: Details of Gaps

### GAP A: CL2→HL3

#### Gap (Missing Content)

This table lists the content that a student will be **missing** if they have completed CL2 and then take HL3. This is the content to be delivered in Gap Training in the selected Transition Scenario.

Competency	Missing Objectives or Learning Task	Achievement Criteria	Changes	Priority	F2F Hours
I1 Apply Combustion Theory	All	No	New	High	6
I2 Apply Draft Theory	All	No	New	High	6
I4 Apply Knowledge of Mechanical Safety Devices	All	No	New	High	6
J3 Install Gas Piping and Tubing Systems	All	No	New	High	6
J9 Install Gas-Fired Appliances and Ancillary Equipment	All	No	New	High	6
					<b>30</b>

There is no significant overlap from CL2→HL3.

## GAP B: CL3→HL4

### Gap (Missing Content)

This table lists the content that a student will be **missing** if they have completed CL3 and then take HL4. ***This is not an option for apprentices; it is intended to define the competencies and duration that comprise the gap at B.***

Competency	Missing Objectives or Learning Task	Achievement Criteria	Changes	Priority	Strategy	F2F Hours
C3 Use codes, regulations and standards	All	No	HL3←CL4	High	Dual stream CL4 and HL4	8
E2 Use Electrical Wiring Diagrams and Schematics	Design a wire diagram for a high-temp 4 zone hydronic heating system; Create a control narrative from a wiring diagram	Yes	New	High	Dual stream CL4 and HL4	14
E3 Apply Motor and Motor Control Theory	Describe variable frequency drives	No	HL3←CL4	High	Dual stream CL4 and HL4	14
I3 Apply Alternate Fuel Theory	All	No	HL3←CL4	High	Dual stream CL4 and HL4	6
J1 Identify Burners	All	No	HL3←CL4	High	Dual stream CL4 and HL4	10
J2 Identify Flames Safeguards	All	No	HL3←CL4	High	Dual stream CL4 and HL4	10
J4 Install Gas Regulators, Valves and Valve Train Components	All	No	HL3←CL4	High	Dual stream CL4 and HL4	10
J5 Install Gas Controls	All	No	HL3←CL4	High	Dual stream CL4 and HL4	11
J9 Install Gas-Fired Appliances and Ancillary Equipment	All	No	HL3←CL4	High	Dual stream CL4 and HL4	10
M1 Service Gas Distribution Systems	All	No	HL3←CL4	High	Dual stream CL4 and HL4	7.5
M2 Service Gas Burners and Ancillary Equipment	All	No	HL3←CL4	High	Dual stream CL4 and HL4	7.5
M3 Maintain Gas-Fired Appliances, Boilers and Ancillary Equipment	All	No	HL3←CL4	High	Dual stream CL4 and HL4	7.5
M5 Service and Repair Control Systems	All	No	HL3←CL4	High	Dual stream CL4 and HL4	7.5
					<b>Total Hours</b>	<b>123</b>

There is no significant overlap from CL3→HL4.

# Appendix B: Reporting Completion of Gap Training

To report gap training for monitored gaps, you can either use the ITA Technical Training Result Report form, or you can send an email to [assessmentscoordinator@itabc.ca](mailto:assessmentscoordinator@itabc.ca) with the names, IDs, and end dates of training for the students who have completed the training.



## ITA TECHNICAL TRAINING RESULT REPORT

ITA Customer Service  
 800 - 8100 Granville Ave  
 Richmond, BC V6Y 3T8  
 Tel: 778-328-8700  
 Toll Free: 1-866-860-8011  
 examrequest@itabc.ca

Please complete this form and email it to ITA no later than 15 days after class end-date. Missing information may delay the process. The completed form should be emailed to examrequest@itabc.ca

### 1 GENERAL INFORMATION

Training Provider Name	Training Provider Location	Instructor Email	
<input type="text"/>	<input type="text"/>	<input type="text"/>	
Training Provider Session ID	Program and Level	Start Date (mm/dd/yyyy)	End date (mm/dd/yyyy)
<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>

\*If Applicable, please indicate if student has completed Gap Training.

### 2 TECHNICAL TRAINING RESULTS

ITA Individual ID #	Legal Last Name	Legal First Name	Result (%)	*Completed Gap Training	ITA Use Only
1				<input checked="" type="checkbox"/>	
2				<input type="checkbox"/>	
3				<input type="checkbox"/>	
4				<input type="checkbox"/>	
5				<input type="checkbox"/>	
6				<input type="checkbox"/>	



# Appendix C: Registering Students and Identifying Student Training Credit

## Course Registration

For information on how to register students in harmonized courses please refer to the **Course Registration Guide for Training Providers** at [www.itabc.ca/training-provider-resources](http://www.itabc.ca/training-provider-resources).



**COURSE REGISTRATION GUIDE FOR TRAINING PROVIDERS**

This guide will advise how to read and interpret the ITA transcript and use the transcript to inform proper course registration. This guide will also give direction on how to approach the following course registration scenarios:

1. How to Register Students into Progressive Trade Courses
2. How to Register Students into Automotive Service Technician Courses
3. How to Register Students into Courses during Trade Program Transitions

If you have any questions or concerns, please do not hesitate to reach out to ITA Assessments by email at [assessmentscoordinator@itabc.ca](mailto:assessmentscoordinator@itabc.ca) or by phone at 778-330-2683.

If you are unsure of which program the student should be taking, or if you have any questions, please contact [assessmentscoordinator@itabc.ca](mailto:assessmentscoordinator@itabc.ca).

## Appendix D: Dual Streaming

For courses that are dual streaming, you will receive periodic course confirmation emails like the sample below from ITA Assessments to confirm the version of training for each intake. Please be sure to email [assessmentscoordinator@itabc.ca](mailto:assessmentscoordinator@itabc.ca) with any schedule changes that occur.

### Sample confirmation email

Hi,

AST 4 will begin dual streaming as of September 1, 2019. To reduce any possible confusion, I am reaching out to training providers offering these courses to confirm the version of training for each individual intake. The intake will then be created in Direct Access with the appropriate course code. Please ensure that the session ID is included on any communication regarding intakes so as to ensure that the correct exams are selected.

**Please indicate "CL" or "HL" in the Course Code column**

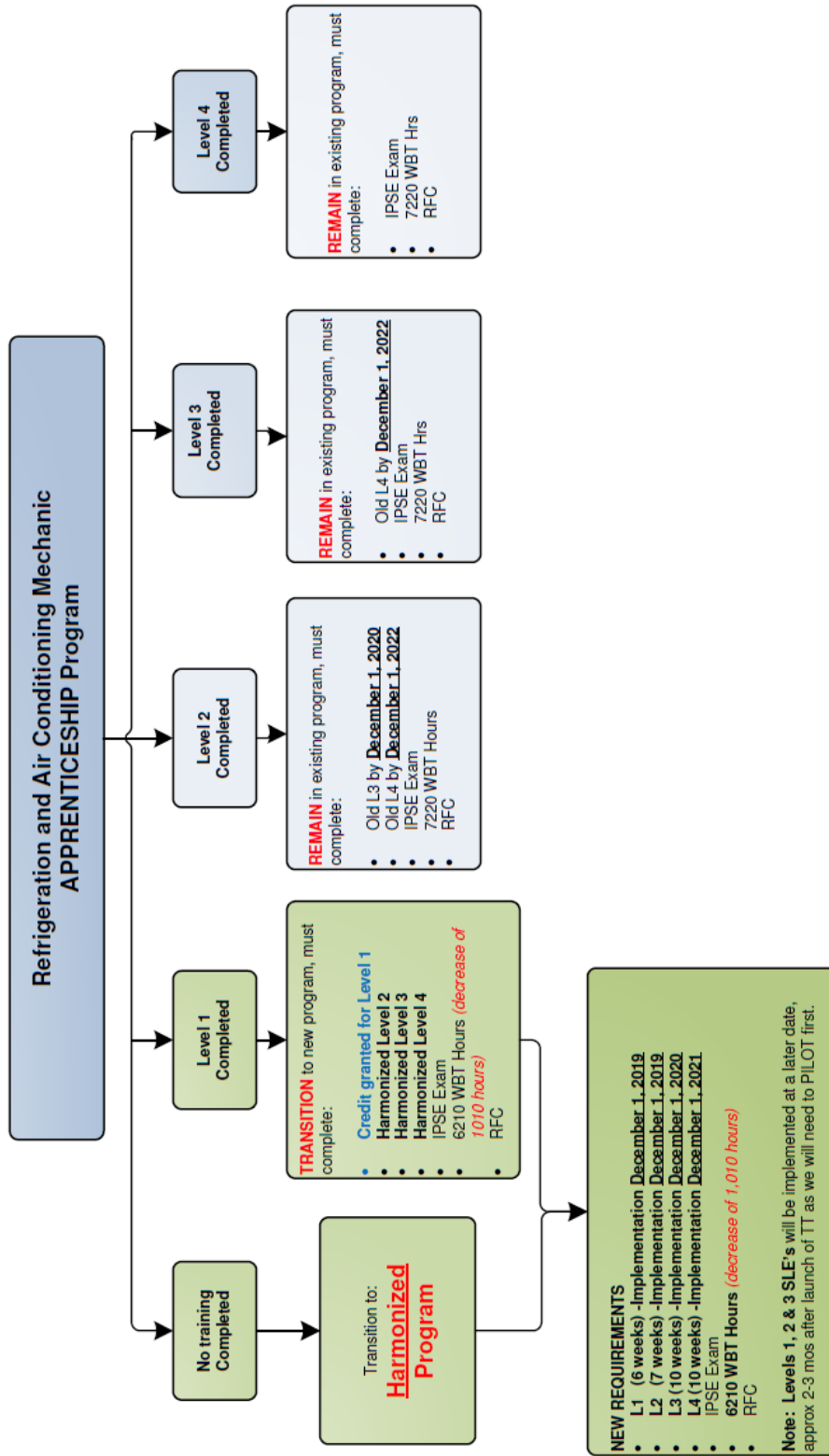
Institution	Program	Level	Session ID	Start Date	End Date	TTC Campus	Course Code	Capacity	Active
	Auto Service Technician (Harmonized)	04	19-0286	2019-10-28	2019-12-13		HL	16	Y
	Auto Service Technician (Harmonized)	04	19-0285	2020-01-06	2020-02-21		HL	16	Y
	Auto Service Technician (Harmonized)	04	19-0284	2020-02-24	2020-04-09		HL	16	Y

## Appendix E: Communication Plan for Transition

Audience	Purpose	Mode
<b>Training Providers</b>	To announce the changes to training standards and the publication of a new Program Outline and Program Profile on the trade webpage on the ITA website	Official Program Standards Notification (OPSN) via email and posting on trade webpage
<b>Training Providers</b>	To plan for transitioning to the new program	Webinar(s), phone calls and/or face to face meetings
<b>Training Providers</b>	To announce the final transition plan	Program Update and Transition Plan via email and posting on trade webpage
<b>Training Providers</b>	To announce the launch of the harmonized level exams	OPSN via email and posting on trade webpage
<b>Employers</b>	To gather input on transition scenarios	Webinar(s), phone calls and/or face to face meetings
<b>Employers</b>	To inform on the upcoming changes to the program and the pathways to completion for their apprentices	Letters sent through ITA Direct Access (DA)
<b>Employers</b>	To inform on the upcoming changes to the program and the pathways to completion for their apprentices	Presentations at Program Advisory Committees (PAC) and other industry events
<b>Apprentices</b>	To inform on the upcoming changes to the program and their pathways to completion	Letters sent through ITA Direct Access (DA)
<b>Apprentices</b>	To inform on the upcoming changes to the program and their pathways to completion	Targeted outreach via phone and email
<b>Apprentices</b>	To inform on the upcoming changes to the program and their pathways to completion	Classroom visits by Apprenticeship Advisors

# Appendix F: Transition Map

## Refrigeration and Air Conditioning Mechanic Transition Map EFFECTIVE December 1, 2019



### CHALLENGE PATHWAY

Refrigeration and Air Conditioning Mechanic Hours Requirement: 9,315 hours (was 10,830) (*decrease of 1,515 hours*)

Last Updated: April 10, 2019