

Program Review

Final Report and Action Plan

Heavy Mechanical Trades

Foundation and Apprenticeship Harmonized

Submitted to
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Contents

Preamble.....	4
A. Summary.....	4
B. Background	4
C. Program Overview.....	5
Mission	5
Vision	5
Purpose	5
Program Structure	5
D. Summary of Strengths and Challenges	7
Identified Strengths of the Program	7
Gaps and Weaknesses of the Program	7
E. Summary of Key Findings from the External Reviewers.....	8
F. Program Response to External Reviewers' Recommendations	9
Theme 1: Build Stronger Connections and Relationships	9
Recommendation 1: Industry Connections Require More Engagement and Development	9
Recommendation 2: Develop More Post-Secondary Connections with BC Institutions	10
Recommendation 3: Enhance NIC Administration Connections and Communications.....	11
Recommendation 4: Extend Relationship and More Engagement with NIC Community Members	11
Recommendation 5: Continue Involvement with Centre for Teaching and Learning Innovation (CTLI) to Further Develop Teaching Practices	12
Recommendation 6: Build Strong Connections within all the NIC Trades Departments.....	12
Recommendation 7: Enhance Effectiveness of Heavy Mechanical Trades Department.....	13
Theme 2: Enhance Student Learning Experiences	13
Recommendation 1: Enhance Teaching and Learning Practices through Professional Development	13
Recommendation 2: Further Develop Student Learning Experiences within Program	13
Recommendation 3: Creatively Explore Alternative Ways for Curriculum Resource Development.....	14
Recommendation 4: Consider Ways to Identify Learners' Needs Prior to Program	14
Recommendation 5: Be Intentional with More Practical Learning Experiences	15
Recommendation 6: Get Creative with Aging Equipment	15
Recommendation 7: More Focus on Student Retention and Success	15
Recommendation 8: Build Plans for Future Training and Trends.....	16
G. Indigenization of Teaching and Learning Experiences	16

Preamble

As we continue working through the process of program review and renewal we are guided by the college's overarching, interwoven strategic plans, **BUILD 2026**, **Widening Our Doorways**, and **Working Together – the NIC Indigenization Plan**. The recommendations put forth (and the action items detailed in the accompanying Action Plan) align with commitments articulated in the guiding documents and are part of our continued effort to meet the needs of our diverse community of learners.

A. Summary

The Heavy Mechanical Trades program area engaged in the program review process. The outcome of this document is an action plan that details the upcoming work to enhance the program.

B. Background

In accordance with North Island College's Policy 3-11, the department undertook the program review process. This final report synthesizes recommendations and next steps from the department's self-study and the external review report.

The self-study was completed in by May 6, 2024 and submitted to the dean Trades and Technical Programs, Cheryl O'Connell. Survey data from current students, alumni, and faculty were included to support the conclusions and recommendations shared in the self-study.

The external review visit was conducted on May 23 and 24, 2024.

The external review team consisted of:

- Paul Mottershead, Associate Dean Trades and Applied Technology, Vancouver Island University
- Brian Haugen, Business Representative, Financial Secretary, Director, Education and Engagement International Union of Operating Engineers Local 115
- David Johns, Instructor, Construction Electrician Programs, North Island College

The external review team, in fulfillment of its responsibilities, met with:

- Vice-President Academic: Tony Bellavia
- Dean, Trades and Technical Programs: Cheryl O'Connell
- Faculty
- Students and Alumni

This final report is based on the program self-study, the external review report, and responses from program faculty.

C. Program Overview

Mission

The mission of the Heavy Mechanical program is to prepare and train students for their apprenticeship, so that they may make a meaningful impact in the Heavy Mechanical trade of their choosing, and through their continued success, make a positive impact into the future of their trade and the industries that rely on their skill and ingenuity every day.

Vision

For those wishing to enter any of the four Heavy Mechanical trades and as well continue their apprenticeship, the vision of the Heavy Mechanical program at North Island College is to continue its journey to become an accessible, high quality, and advanced training option for students of all backgrounds that are both local to the North Island as well as throughout British Columbia.

Purpose

The purpose of the Heavy Mechanical Trades Program at North Island College is to deliver the technical training as outlined by SkilledTradesBC and prepare students for success in any of the four trades under the Heavy Mechanical Trades umbrella, giving them the skills that are both relevant and an asset in today's modern industry.

North Island College is committed to delivering up to date and comprehensive programming in both our Foundations and Apprenticeship pathways, supporting the students in their journey through their chosen program.

Foundations program allows students to begin with the basics which gives them the skills and knowledge to then decide which apprenticeship pathway to take. The apprenticeship program leads to students writing their Red Seal or Trades Qualification exams at the end of their apprenticeship in Heavy Duty Equipment Technician, Truck Transport Mechanics, Transport Trailer Technician, or Diesel Engine Mechanics, ultimately setting them up for success with employable skills and abilities.

We believe that preparing students means not just delivering the curriculum content contained in the courses, but also teaching students to be successful tradespeople and competent problem solvers.

Program Structure

North Island College offers **all four heavy mechanical trades** (fully or in part) training in line with the criteria set by SkilledTradesBC via a Foundation Certificate and Apprenticeship levels.

[Foundation Certificate](#)

The NIC Foundational Certificate includes Level 1 training of common curriculum for the truck and transport mechanic (TTM), transport trailer technician (TTT), heavy duty equipment technician (HDET) and diesel engine mechanic (DEM) trades. Students also can earn Level 1 technical training and work-based training hours when they register as an apprentice — allowing them to secure entry level positions in various industry

sectors like logging, mining, road building or commercial repair. Apprenticeship opportunities after completing foundation training include:

- Truck and Transport Mechanic (TTM)
- Transport Trailer Technician (TTT)
- Heavy Duty Equipment Technician
- Diesel Engine Mechanic (DEM)

Applicants entering the **foundation level** can learn essential workplace skills in addition to earning the Level 1 training credit and work-based training hours towards the Interprovincial certification when registered as an apprentice. Entrance requirements for foundation program are found [here: link](#)

[Apprenticeship Training](#)

Through NIC's apprenticeship programs, students can complete their Interprovincial Red Seal in the Heavy Duty Equipment Technician apprenticeship, earn their certification in the Diesel Engine Mechanic apprenticeship or complete up to level 3 in their Truck and Transport Mechanic apprenticeship.

The four heavy mechanical trades are:

1. Truck and Transport Mechanic (TTM)

Truck and transport mechanics inspect, repair, and maintain commercial trucks, emergency vehicles, buses, and road transport vehicles. They work on the vehicle's structural, mechanical, electrical, and electronic systems. They also work on components such as engines, cab, chassis and frames, brakes, steering, suspension, drive train, HVAC, fuel systems, and hydraulic systems.

2. Transport Trailer Technician (TTT)

Transport trailer technicians inspect, diagnose, maintain, rebuild, assemble, and repair transport trailers connected to, or moved by, a power unit. Trailers include flat decks, dry freight vans, refrigerated vans, tankers, converters, boosters, jeeps, pole trailers, steering dollies, dump trailers and any other commercial pull-type units.

3. Heavy Duty Equipment Technician (HDET)

Heavy duty equipment technicians diagnose, repair, adjust, overhaul, maintain, and test mobile heavy-duty equipment. They are employed in various industries such as construction, forestry, mining, marine, oil and gas, material handling, landscaping, and land clearing.

4. Diesel Engine Mechanic (DEM)

Diesel engine mechanics install, repair, and maintain all internal combustion diesel engines and components used in heavy equipment, on highway, industrial, rail, and marine applications.

Applicants must be SkilledTradesBC registered apprentices to enter the **apprentice pathway**. Apprentices enrolling in technical training must take their training in sequential order, level 1, then 2, 3 and 4.

Apprentices must complete all levels of technical training to be eligible to write the Interprovincial Red Seal examination. Further information about NIC's Heavy Duty Apprentice Training can be found [here: link](#)

D. Summary of Strengths and Challenges

Identified Strengths of the Program

From current and past student surveys inputs from student support groups and a current student focus group, the following strengths were raised:

- Dedicated and supportive instructors positively affect the programs' abilities to meet learner commitments.
- Instructors are committed to supporting students' success in achieving learning outcomes and being prepared for employment in the heavy mechanical trade.
- The program has strong skills-based experiential learning components built into courses allowing students to develop the required skills to be successful in the workplace.
- The current student focus group noted they have teachers that engage different learning styles, prepare them well for the exam and are approachable and open to questions.
- Students experience active learning opportunities in a safe learning environment and great community. Instructors are committed to grow, learn, and stay current on topics in the field.
- There is a strong network of academic and non-academic supports and resources provided by the Library & Learning Commons.
- The Heavy Mechanical Trades programs have an active Program Advisory Committee (PAC) providing input and guidance to the department.

Current students have meaningful learning experiences and former students go on to achieve success in the community and convey that the program did a good job in preparing them for the workforce. The program and its instructors have been successful in providing students with a comprehensive base of mechanical knowledge and skill development resulting in gainful employment.

Gaps and Weaknesses of the Program

Instructors acknowledge some gaps in the program as follows:

- Insufficient time for curriculum development
- Lack of modern training aids such as new tooling, trucks and machines, and electronic diagnostic equipment
- Support to maintain the current fleet and training aides to support student learning
- Registration limitations for registering for future courses, students unable to plan ahead

E. Summary of Key Findings from the External Reviewers

The external review team felt the quality of the instruction in the North Island College Heavy Mechanical programs were very good and in alignment with SkilledTradesBC curriculum expectations.

Throughout this report, the external review team provides recommendations, insights, and suggestions for enhancement in areas such as:

- enhance the student learning experience with greater breadth and depth of instructional skills particularly in assessment and evaluation
- further engage in professional development through internal CTLI workshops and courses, department PD, Indigenous learning, department plans etc
- build stronger relationships and more frequent engagement with industry for work integrated learning, demos and talks, program advisory committee and job fair enhancements
- develop more relationships within North Island College and externally with other post-secondary institutions
- expand the impact of work experiences by considering ideas such as requiring work experience of all Foundations students

F. Program Response to External Reviewers' Recommendations

This section outlines the recommendations made by the external review team and our department responses.

Theme 1: Build Stronger Connections and Relationships

Recommendation 1: Industry Connections Require More Engagement and Development

Some industry relationships exist but further development is required with industry connections during work experience for foundation students and with apprenticeship employers

Enhance industry and employer connections to build relationships for donations and borrowing of equipment, training and engagement in long term plans for HMT at NIC. Here are some thoughts:

- Enhance industry connections help close the gap between industry and the institution and benefit both groups
- Skilled Trades BC Advisor can be leveraged more to act as liaison between NIC and employers
- Instructors should use professional development time to conduct site visits and forge connections with employers
- Redesign the work experience, make it mandatory; take under consideration for a different model. For example, a couple of weeks at end of the program for work experience, or Fridays throughout the year and a two-week section at the end o Instructors would be involved in the work experience process by conducting site visits, evaluating students on the job via course feedback and practical assessment of student by SME
- Further evolve the Program Advisory Committee (PAC) and its relationship with NIC instructors and institution such as host the PAC meetings at different locations, e.g., at the employers' shops/boardrooms
- Invite industry experts into classrooms and talk with students about opportunities / industry possibilities, have students demonstrate skills and experts provide feedback
- Have industry training nights using NIC facilities, instructors invited to attend training or watch
- Connections with industry could lead to borrowing equipment to supplement learning

Department Response

There is agreement that these are viable ideas, many of which are already underway but could use further development and enhancement.

- **Borrowing/renting equipment** – the instructors are unsure if this is possible. Having students work on borrowed equipment could pose liability/insurance problems.
 - Could use the borrowed equipment instead as demo pieces versus having students working on it.
 - Further investigation and exploration of this recommendation is needed.

- **Leveraging the STBC Advisor Connection** – the instructors are willing to explore this further to see how the connection could be deepened, and services expanded so that coordination with the liaison and NIC is better synced.
- **Using PD time for Site Visits** – this is currently being done and they will continue to do so.
 - Instructors currently have connections with approximately 30 businesses, the relationships with these 30 could be evolved and enhanced further. Not all industry connections are local.
 - In the past when site visits occurred, instructors handed out invitations to the PAC meetings
 - Efforts have been consistently made in the past, but how can these connections to industry be improved even further moving forward, ex. More industry involvement in the PAC
- **Work Experience/Work Integrated Learning** – the department just redesigned the work experience to NOT be mandatory
 - Based on student and employer feedback, the model where it is mandatory was not being received well and was difficult to support ongoing
 - A struggle when mandatory was finding enough placements for the students, not all employers are willing or able to take on students
 - It's not a requirement of STBC so it makes it difficult to tell students it's mandatory
 - Previously there was no requirement for students to do well in their work experience placement in order to pass their program → If it's made mandatory now, it would be set up as a course that would have to be passed to finish/pass the Foundation program
 - The instructors would want to know who would coordinate all of the work placements IF it were made mandatory

Recommendation 2: Develop More Post-Secondary Connections with BC Institutions

NIC instructors should have more frequent engagements with heavy mechanical trades instructors at several BC institutions through activities such as:

- undertake regular visits to local island and mainland post-secondary institutions to network, learn and share with other instructors, see their space, observe a class in action as part of professional development days
- attend trades teaching and learning events run by BCcampus, institutions, or other organizations to meet and connect with other BC instructors
- consider working together to apply for funding or purchase equipment that is shared by all, along with collaborative curriculum development sessions to share development of new materials and content

Department Response

Instructors acknowledge that connections with other institutions are valuable and would like to continue to evolve these relationships further.

- **Visiting other Institutions** - Instructors agree that visiting other institutions would be a positive addition to their practices and they would like to conduct visits when possible, ex. Start with a visit to VIU Heavy Mechanical. Just one instructor attends each visit, not all three.
- **Teaching and Learning Events** - Instructors have attended teaching and learning events in the past

- **Shared Resources with other Institutions** – Sharing curricular resources is a great idea and the instructors are open to this. The instructors feel that pursuing shared equipment poses some difficulties logistically though, more exploration may be needed around the shared equipment.

Recommendation 3: Enhance NIC Administration Connections and Communications

There are many areas for enhancement in building stronger connections, communications, and relationships with NIC administration (dean, associate dean, coordinator, etc.) and instructors.

Some examples include:

- Institution:
 - consider a chair role (or equivalent) to the department or a “point person” to assist in leadership, funneling of communications etc.
 - improve communication between continuing education and trades samplers when they are needing to use the shop space
- Instructors:
 - work with administration to ensure you have all the details about the Skilled Trades BC planning, requirements, and planning at NIC
 - create a current and frequently updated capital budget wish list and communicate with the dean
 - work with administration to build timely engagement in ongoing scheduling and ability for students to be allocated to future classes
 - communicate with administration about any curricular processes such as ACD revisions

Department Response

- Instructors currently meet with Associate Dean once a month to review scheduling and any other concerns which they find useful, moving forward have the Dean present at some of these meetings
 - Instructors currently do have a capital budget wish list that is updated frequently, however Joe did not know where this document was until recently. Aim to have the document in a shared/common place where all can access it.
 - Instructors acknowledge that not being able to register for their levels into the future is a pain point and does need a resolution. (In April of each year, 12 months of courses are loaded and students can register for. No institution has the ability to register students beyond this 12 month period. If the levels are changed to be “programs” then students could have the ability to register further into the future.)

Recommendation 4: Extend Relationship and More Engagement with NIC Community Members

Instructors require more knowledge, awareness, and understanding of how their role and department fit within the NIC community. There are some gaps in fully understanding postsecondary culture, especially between trades and other academic areas and management. Some thoughts for enhancement:

- build a departmental strategic plan or at minimum a Trades and Technical Programs Faculty Strategic Plan, involving all instructors in the process

- set academic excellence as a goal with measurable learning outcomes and examples of success with the outcomes
- more involvement with processes and activities in the NIC community outside of the HMT department
- increase presence of leadership in shops/trades buildings

Department Response

- The action plan acts as a departmental strategic plan
- Could NIC faculty be invited to the HMT/Trades building in Campbell River for events to build institutional community further. Ex. PD opportunities like “how to change a tire” → Could this be scheduled during an intentional “black out period” that is non-instructional. Could be a mini-conference style event with workshops, speakers, and other events with NIC academic faculty

Recommendation 5: Continue Involvement with Centre for Teaching and Learning Innovation (CTLI) to Further Develop Teaching Practices

Instructors want to continue to expand knowledge but need offerings during times that work with their teaching schedules.

- Attend workshops and educational sessions during times that work for trades schedules (e.g., lunch hours, end of day, Fridays, Mondays)
- Consider attending general teaching and learning conferences, courses and training opportunities to broaden core teaching practices and instructional techniques
- Lean on the Teaching and Learning Consultant (Trades and Technical Programs Focus) in the CTLI for custom or trades specific training, engagement and activities

Department Response

- Instructors are open to furthering their educational pursuits, but the timing with classes needs to be appropriate so their time isn’t taken away from students for too long.
- Instructors like the idea of NID’s (non-instructional days) where they can attend workshops or conferences to further their knowledge and skills.

Recommendation 6: Build Strong Connections within all the NIC Trades Departments

To better leverage the expertise, sharing and engagement in successful instructional practices and departmental growth, the Heavy Mechanical Trades area needs to build stronger and more connections with other trades areas such as:

- Have regular (monthly) all Trades faculty with the dean to enhance and foster relationships
- Increase frequency of resource and knowledge sharing between departments
- Have semi-annual retreats that are a combination of work/achieving goals and leisure/social activities. Faculty members choose what is being worked on and could be linked to the goals and objectives from the Trades and Technical Programs Strategic Plan (mentioned in # 5)

Department Response

- Have a regular monthly all Trades faculty meeting with Associate Dean
- Instructors do have relationships with other Trades departments currently

Recommendation 7: Enhance Effectiveness of Heavy Mechanical Trades Department

The Heavy Mechanical Trades department requires further enhancement to function effectively.

- Enhance leadership within the department to have one person take on a key communication role with administration
- Invite administration into department meetings to discuss and share needs on a regular basis

Department Response

Instructors acknowledge that a lead person to take on key communications would be a useful approach moving forward.

Theme 2: Enhance Student Learning Experiences

Recommendation 1: Enhance Teaching and Learning Practices through Professional Development

- How can professional development time connect to teaching and learning enhancements?
 - Expand understanding of what professional development is, that there are several types: specific to their trade, specific to teaching and learning, specific to how students learn etc.
- Improve not just trade specific ability, but also improve teaching and learning capabilities through various professional learning experiences
- Foster intentional learning skills and abilities to integrate more industry experience - work experience was identified as a vehicle to do this
- Offer use of NIC shop to industry leaders for their training that instructors can sit in on and gain further skills and knowledge

Department Response

Instructors agree with this recommendation, a number of these are currently occurring, but when time permits more work could be done to enhance professional development opportunities

Recommendation 2: Further Develop Student Learning Experiences within Program

- Utilize smaller group sizes of 2 students instead of 4 in the shops to provide more hands-on learning (explore creative ways to get everyone doing more applications in smaller learning groups)
- Have students and apprentices write service reports (in groups of 2) so they must collaborate and agree on what was done. There is a noted lack of skills on the part of students across the sector in terms of writing service reports – and flagged as a big concern. Customers don't want to pay for things that are not clearly articulated as needed. This could be an enhancement to all levels.

- Increase the variation in assessment methods – enhancing more variation in addition to multiple-choice quizzes and tests
- Further enhance level exam preparation throughout the program to support understanding and test taking skills, build in more purposeful learning connections throughout the whole level to help students see relationships with core concepts
- Remind students and build in teaching and learning activities to help students with their responsibility to review and prepare for the level exam by constantly reviewing material throughout the year/months
- Each year the levels should refer to Red Seal requirements and prepare students more fulsomely through each level towards the Red Seal
- Idea: consider a one-week Red Seal prep week for review for those preparing to take Red Seal (cost-recovery or at a small loss to support 4th year) and for those who want to challenge the Red Seal. There could be a number of these folks as mandatory trades come into play – and there could also be additional specialized courses to help those challengers be more successful

Department Response

- Groups of 2 are possible in the shop, they would just need to double up on toolboxes
- The instructors feel that students writing service reports is something that should be occurring and is done within their shops currently.

Recommendation 3: Creatively Explore Alternative Ways for Curriculum Resource Development

- Have students or other trades departments build props/instructional aids
- Increase cross collaborations between trades departments
- Rethink the structure of the program to build more time in for curriculum development
- Work collaboratively with other institutions to develop core curriculum materials and tweak those for NIC use instead of developing from nothing

Department Response

- The instructors agree with these recommendations, working collaboratively with the other Trades departments to create instructional aids is a great idea
- There's room for further examination and exploration of more efficient curriculum development

Recommendation 4: Consider Ways to Identify Learners' Needs Prior to Program

- The external review team suggests looking at a mandatory trades assessment prior to coming to the program - this could be a formative, self-reflective process that could have advice based on literacy, numeracy, document reading and use etc.
- This can help identify if students may need additional supports in areas such as math and they can be directed to the appropriate support area as soon as they begin.

Department Response

- There may be value in placing more emphasis and attention on pre-assessment and in preparing NIC students in general for learning – there could be a Trades specific 1 week online (cost-recovery, non-credit) readiness course prior to programs beginning.

Recommendation 5: Be Intentional with More Practical Learning Experiences

- Work experience helps to foster more intentional learning
- Enhance the work experience portion of the program more so that it is a requirement or at the least greatly encouraged
- Instructors need to have more involvement with work experience employers, foster deeper connections via site visits and check ins on student progress

Department Response

- As per thoughts above, more thought and exploration needed

Recommendation 6: Get Creative with Aging Equipment

- Older equipment can be stripped of useful parts and auction the items off on BC Auction and money put into an HMT pot to then use it to purchase newer equipment
- Borrow or rent equipment from industry partners
- Use scrap steel to generate funds that go into HMT pot
- Instructors should have an ongoing list of capital cost items that they need

Department Response

- Instructors currently do a number of these recommendations currently.

Recommendation 7: More Focus on Student Retention and Success

- Improve enrolment process so there are less barriers to registration online. Develop a more robust waitlist/interest list for future level offerings that involves students being contacted when enrollment opens. This will retain existing students better.
- Improve communication channels so that students who are waitlisted are adequately informed when a spot becomes available (NOTE: Provincial Trades Waitlist Group is addressing this topic).
- Allow students to access grades online through a platform like Brightspace instead of having to request through their instructor

Department Response

- As per comments above about pre-registration
- Students can access individual assessment grades in CDX and some instructors provide accumulative grades in CDX also, further expansion in how the instructors are providing accumulative grades could be examined.

Recommendation 8: Build Plans for Future Training and Trends

- Borrow newer equipment to learn on (e.g., hybrid electric vehicle equipment) from industry partners or invite industry in to give demonstrations

Department Response

- As per comments above

G. Indigenization of Teaching and Learning Experiences

See action plan.