

AST ARTICULATION MEETING 2024

Location: Centre for Trades Education and Innovation (CTEI)

Present: 29 representatives from:

Camosun College – Kyle Broad, Patrick Jones, Mike Boscik, James Gough

Vancouver Island University – Dean Cadieux, Dale Baumel, Ron de Pape

College of the Rockies – John White

Northern Lights College – Kyle Eckert

British Columbia Institute of Technology – Russ Hunter

North Island College – Jaylene van der Merwe

Coast Mountain College – Dave Reinhardt

Kwantlen Polytechnic University – Grant Conversi, Larry Rhodenizer

College of New Caledonia

Okanagan College – Andrew Ross, Davor

Thompson River University – John Wrigley

University of the Fraser Valley – Greg Wedel

Vancouver Community College – Jay Copeland, Andu Keddis, Mike

Time: 8.30 – 3:00 pm

Facilitator: Camosun, Victoria

Agenda Items

1. Opening Remarks

Welcome from Dale Baumel

Round table introductions: Emphasis on the diversity of experience among participants.

Institutional Greeting - Kyle Broad: Land acknowledgement. Ken Kosik: Welcome to Camosun Interurban Campus

2. Approval of Agenda and Previous Minutes

Reviewed the meeting agenda and previous meeting minutes.

Called for approvals from participants.

3. SLP Report, Mubasher Faruki

- **Communication and Collaboration:** Ensuring steady communication among administrators across provincial colleges and focusing on a system-wide approach to address trade issues, particularly in Automotive Service Technician (AST) programs.
- **Current Stability and Focus Areas:** AST programs are currently stable, with a significant focus on emerging technologies such as Electric Vehicles (EVs) and Advanced Driver-Assistance Systems (ADAS).

- **Funding Challenges:**
 - Funding is a major challenge for most colleges in BC, affecting their ability to adopt new technologies and conduct additional training.
 - Colleges face significant financial challenges, with frozen budgets and limited capital for new technologies and resources.
 - Skilled Trades BC funding has not been adjusted for inflation or increased costs over decades.
 - Funding limitations hinder education quality and necessitate sustainable funding for resource-intensive programs.
- **Industry Collaboration:** Encouragement to collaborate with industry partners for resources and funding opportunities, including partnerships with companies like Tesla and local dealerships for equipment and vehicles.
- **Capital Resources and Grants:** Emphasis on pursuing grant funding opportunities to address funding challenges, with some colleges successfully obtaining capital resources through grants.
- **Graduation Ceremonies:** Low attendance at graduation ceremonies for trade students highlights the undervaluation of trades, with efforts being made to increase the visibility and celebration of trade professions.
- **High School Trade Programs:**
 - Push to reintroduce trade training in high schools, requiring qualified instructors and adequate resources.
 - Dual credit programs are seen as a solution to integrate high school students into post-secondary trade training.
 - The Ministry of Advanced Education is exploring high school trade programs, considering pilot programs and comprehensive trade training that extends beyond level one.
 - High school students express interest in completing full foundation programs, not just dual credit levels one through four.
- **Instructor Recruitment:**
 - Difficulty in finding qualified instructors for High School trade programs due to pay disparities and Bachelor's degree requirements.
 - Industry connections are crucial for quality training and addressing labor shortages.
- **Apprenticeship Programs and Industry Partnerships:**
 - Advocacy for changes in funding for school programs and support for high school apprenticeship programs.
 - Challenges include long wait lists and difficulty finding landing spots for graduates.
 - Importance of starting programs with a focus on completion to avoid waitlist issues.
- **Resource Allocation and Sustainability:** Emphasis on sustainable funding for resource-intensive trade training programs, with a continuous need for updating equipment and ensuring high-quality training environments.

- **Importance of Industry Contacts:** Leveraging industry relationships to support trade training initiatives and ensuring students have clear pathways from high school programs to full apprenticeships and beyond.
- **Industry Changes and Updates:** Discussion on critical changes in the Apprenticeship and Skills Trades program, including the integration of new technologies like Electric Vehicle Technology and the impact on apprenticeship programs.

4. Changes to Level and New Curriculum

4.1 Level 2 Changes and new curriculum, Dale Baumel

Changes to time allocation

- Line H: Time changed from 31% to 25% and weighting went from: theory (40%-60%) practical (60% to 40%)
- Line I: No change in time but weighting went from: theory (40% to 50%) practical (60% to 50%)
- Line K: Time changed from 14% to 20%, weighting stayed at theory (60%) and practical (40%)

ADAS and Related Systems:

- The new RSOS curriculum includes significant updates concerning ADAS, which encompasses technologies like automatic emergency braking and electronic steering systems.
- There is an increased emphasis on understanding and teaching these advanced technologies, reflecting industry trends towards more automated vehicle systems.

Manual Transmission Emphasis Reduction:

- Due to a decline in production and usage, the emphasis on manual transmission systems has been reduced in the curriculum.
- Practical training for manual transmissions has decreased from 60% to 40%, with more focus now on theoretical aspects and understanding gear ratios and power flow.

Electrical Systems:

- While there are no major changes reported in diagnostic procedures for electrical systems, the balance between theory and practical training has been adjusted.

Steering, Suspension, and Braking Systems:

- There has been an increase in the curriculum's focus on these systems, particularly in understanding new components like master cylinders with built-in motors for autonomous braking.

Networking and Level Three Outline:

- There has been a significant reduction in the emphasis on networking, with the curriculum now focusing more on basic understanding rather than detailed technical aspects like LIN Bus systems.

Level Four Changes:

- Standardization across all levels with the removal of specific exams (SLE) in favor of Red Seal exams.
- Detailed study continues in areas like all-wheel-drive systems.

General Teaching Approach:

- Educators are encouraged to adapt teaching methods to reflect these changes and ensure that students are prepared for the evolving automotive industry.

4.2 Level 3 changes and ADAS Overview, Russ Hunter

- BCIT oversees two adaptive departments and specialize in ADAS calibrations and diagnostics.
- **Terminology and System Identification:**
 - Plans to categorize and label various ADAS systems to clarify their roles and relationships with sensors. Stresses the importance of understanding industry-specific terminology to ensure consistency in teaching and practice.
 - Focus on Windshield Cameras: Highlights the significance of windshield-mounted cameras in ADAS, categorizing them into single-lens, dual-lens, and tri-lens configurations.
 - Discusses Tesla's use of tri-lens cameras as a notable example in the industry.
- **Teaching Methodology:**
 - Advocates for breaking down complex ADAS concepts into manageable parts, focusing on practical applications for everyday driving scenarios.
 - Recommends using standardized professional language to align with industry standards and enhance learning outcomes.
- **Specific ADAS Technologies:**
 - Discusses Lane Departure Warning and Lane Keep Assist systems, emphasizing their reliance on camera-based technologies to detect lane markers and maintain vehicle positioning.
 - Explains Adaptive Cruise Control (ACC) systems, detailing their evolution from basic speed maintenance to stop-and-go capabilities.
- **Sensor Technologies:**
 - Provides insights into radar technologies used in ADAS, emphasizing their role in measuring distances and detecting changes in front of the vehicle.

- Mentions the use of millimeter-wave radar and its capabilities compared to conventional radar systems.
- **Practical Demonstrations:**
 - Suggests using visual aids and demonstrations to enhance understanding, such as showing schematics of radar and camera setups in ADAS systems.
 - Recommends practical exercises involving ADAS components to illustrate their interactions and functionalities.
- **Future Trends and Considerations:**
 - Briefly touches on Lidar technology, noting its application in advanced autonomy and three-dimensional imaging but acknowledges its current limited adoption in mainstream vehicles.
- **Rear-Facing ADAS Overview:**
 - Russ introduces rear-facing ADAS, focusing on rear radar as a key component.
 - Emphasizes the differences between front and rear radar, where rear radar is shorter range (80ft) but has a wider field of view compared to front radar.
- **Functions of Rear Radar:**
 - Discusses Blind Spot Monitoring (BSM) and Rear Cross Traffic Alert (RCTA) functionalities.
 - Explains how rear radar functions differently during driving versus in reverse, adjusting its field of view and measurement capabilities accordingly.
- **Calibration Considerations:**
 - Stresses the importance of calibration for rear radar systems, particularly after repairs or modifications like bumper replacements.
 - Highlights challenges with bumper repairs affecting radar performance due to changes in plastic density.
- **Teaching Focus and Techniques:**
 - Advises focusing on practical aspects like windshield camera inspections and calibration procedures.
 - Recommends teaching static and dynamic calibration methods, highlighting their differences and when each method is appropriate.
- **Equipment and Tools:**
 - Mentions specific tools and equipment like the Bosch DAS 3100 and Autel tools for ADAS calibration.

- Discusses considerations for purchasing standalone versus integrated calibration tools based on professional needs.
- **Educational Resources and Procedures:**
 - Demonstrates how to use service information effectively to access ADAS calibration procedures and target placement details.
 - Encourages proactive research and preparation before vehicle purchases or repairs to streamline calibration processes.
- **Training and Support:**
 - Offers support and training resources from institutions like DCC for comprehensive ADAS education.
 - Encourages collaboration and seeking guidance to enhance understanding and proficiency in ADAS technologies.

4.3 Level 4 Changes, Patrick Jones

Time Allocation Changes:

- Significant reduction in time allocated to automatic transmission overhauls from 54% to 35%.
- Increased focus on diagnosis and repair of all-wheel drive systems and transfer cases.

New Content Introduced:

- Addition of networking systems diagnosis and repair (formerly Level 3 content).
- Emphasis on understanding CAN networks and emerging technologies like Ethernet in vehicles.

Increased Complexity in Electric Vehicles (EVs):

- Expansion of content related to hybrid and EV systems, including battery management (heating, cooling), inverter modules, and high-voltage systems.
- Introduction of HVAC systems involving heat pump systems and their integration with EV components.

Adjustments in Curriculum Emphasis:

- Higher weighting given to electrical systems and components repair (from 2% to 4%).
- Increased focus on advanced AC systems (17%) and restraint systems (from 5% to 7%).

Challenges and Concerns:

- Resource availability and adequacy for teaching new content, especially in emerging technologies like EVs and networking systems.
- Variability in EV adoption and exposure among instructors, impacting comfort levels in teaching new material.
- Financial challenges for institutions in acquiring necessary equipment and updated textbooks for the revised curriculum.

Teaching Approach and Preparation:

- Emphasis on breaking down complex systems (e.g., EV temperature management, high-voltage systems) into manageable components for effective teaching.
- Concerns over aligning curriculum with industry standards and technological advancements rather than focusing solely on exam content.

Resource and Material Considerations:

- Discussions around sourcing and sharing resources legally, including textbook materials and proprietary information from manufacturers like Kia.

Assessment and Evaluation:

- Preparation for Red Seal exams, although challenges exist due to limited input from provincial bodies.
- Emphasis on practical assessments and preparing students for real-world challenges in automotive technology.

5. Changes to the Federal RSOS Document and Provincial Outline presented by Skilled Trades BC.

Automotive Update Cycle

Activity	Anticipated Timeline
RSOS Implementation	2023 – available on Red Seal Website
L1 & L2 SLE Workshop	August 12 - 16
L1 & L2 SLE Peer Review Workshop	November
L3 SLE Peer Review Workshop	June 20-21
Program Implementation	September 1, 2025

- RSOS implementation set for September 1st.
- Development aligns with exam launches for efficiency
- Peer reviews conducted with subject matter experts, ensuring quality.
- Development workshops scheduled with a focus on exam preparation.
- Exam development and peer review processes outlined, emphasizing time-intensive nature.
- Blue sheets with student comments scanned and saved electronically.

SLE Review

- Review of SLE's initiated to explore formative uses. Goals include adapting SLEs across trades and ensuring alignment with educational standards.
- **Concerns and Considerations:**
 - Maintaining academic integrity amidst technological advancements.
 - Accommodating student needs while ensuring exam relevance.
 - Balancing exam difficulty to promote student success without compromising standards.
- **Assessment Modification Opportunities:**
 - Discussion on the possibility of different assessment formats arising from the review.
 - Consideration of formative evaluations leading to more process-based questions rather than simple recall.
- **Student Review Benefits:**
 - Emphasis on student review sessions after assessments for better learning outcomes.
 - Proposal for more detailed breakdowns of assessment results to identify areas for improvement.
- **Red Seal Guidelines:**
 - Importance of adhering to Red Seal item construction guidelines for exam questions.
 - Ensuring consistency across quizzes, chapter exams, and final exams to prepare students adequately.
- **Technical Training Rewrite Policies:**
 - Discussion on whether students failing technical training can rewrite the SLE to improve their marks.
 - Clarification on the process of re-blending exams based on institutional policies.

Foundation Program Outlines

- Developing a Foundation Outline for all program with a Foundation program being delivered.
 - Automotive Service Technician
 - Carpenter
 - Piping
- Consideration of whether foundation students should write exams.

- Align with LV 1 content + employability + trade specific (TBD): Proposal for reviewing foundation program outlines and aligning them with the needs of different trades.
- In addition, we're also updating Instructor Requirements on all program outlines: Efforts to align instructor qualification requirements across different trades for consistency. Consideration of separating hiring criteria from instructional outlines.

Online Red Seal Exams: Introduction of a new online exam platform, separate from the current SLE platform.

- All IP exams are available on a National platform
- Currently in development to implement in BC
- Anticipate Winter/Spring 2025: Plans for a fall launch and potential piloting in schools already using online exams.
- Consideration of hybrid exams to address issues with certain types of content in online formats.
- Online exams offer faster results, but occasional technical issues may arise.

6. Group Discussion on all changes to levels

Time Allocation for Teaching

- Discussed appropriate time allocation for various educational areas.
- Emphasized the need for a group discussion on any concerns.

Students' Marks and SLE Eligibility

- Concern raised about students scoring below 70% entering the SLE.
- Suggested discussing potential policies for handling such students.
- Explored the idea of a blended mark system and potential retakes for students scoring below 70%.
- Debated the fairness of allowing students with marks as low as 62% to take the SLE.
- Discussed the impact of setting a minimum threshold of 65%.

Incentives and Outcomes

- Discussed the lack of incentives for students to perform well if they could pass with a low mark.
- Emphasized the importance of setting clear expectations and standards.

Policy Clarifications and Standards

- Confusion around the policy of allowing students to write the SLE with varying marks.
- Discussed the need for consistency across institutions regarding eligibility to write the SLE.
- Suggested setting a standardized minimum requirement.

Impact of SLE on Certification

- Explored the potential benefits and downsides of allowing all students to take the SLE.
- Mentioned the importance of certification for matching skill trades requirements.
- Considered allowing students to take the SLE for experience, even if they are unlikely to pass.

Role of Institutions and Standardization

- Highlighted the role of institutions in managing technical training marks.
- Discussed the need for a common assessment across institutions.
- Suggested tracking and discussing trends in student performance over the year.

Student Performance Trends

- Noted a decline in student performance and marks.
- Linked this trend to the impact of COVID-19 and changes in teaching and learning environments.
- Expressed concern about the future impact on certification pass rates.

Class Sizes and Safety Concerns

- Discussed varying class sizes and the impact on safety and teaching quality.
- Mentioned challenges with increasing class sizes and maintaining safety standards.
- Shared experiences with managing large classes and the implications for funding and resource allocation.

Resource Management and Subscriptions

- Raised concerns about the cost of maintaining up-to-date subscriptions for educational tools.
- Discussed the need for educational packages and discounts to manage budget constraints.
- Emphasized the importance of providing students with access to fully functional tools for their learning and industry readiness.

Future Discussions

- Planned further discussions on textbooks, student challenges, and other educational resources.
- Suggested gathering data on student performance and outcomes to inform future policy decisions.

Meeting adjourned at 2.55 pm

Jan 12/24

Dave (Consulab):

- Brought Jeff from Bellingham, he is the educational specialist.
- Jeff: In some of the video snippets you can see what goes on in the background when we design a product
- Connector trainer was developed for Toyota. Has connectors that have faults. They are generic, not specific to Toyota.
- All of the products come from instructors so that we know what resonates with students
- Presentation EV 400 – 400 volts, but is safe. (Video)
- EV 601, ADAS terms and acronyms
- Dave: All info is online, log into website and product info will be there, full videos are online
- Jeff: ADAS Acronyms test – discuss
- SAE Terms and Abbreviations

- EV-360 ADAS Trainer – Setting up the trainer for student assignments, video
- Demo of Consulab Trainer, discussion of various student activities (Time for attendees to check out the demo machine)

Electude Demo:

- Vanessa introduced Virgil and Darcy
- Darcy Demo – Game/Discovery-based learning (learn by doing)
- In order to teach EV, ADAS (new technology) – instruments, revised level 3 and level 4 new technology, funding will be required to access new tools and systems. A conversation has been started with TTBC to try to secure funding.

Cengage

- Chris: Custom Textbook Presentation
- Discussion about text books. How many institutions would use the books?
- Is there interest in moving forward? Curriculum mapping team is ready to go forward.
- Dave will email everyone the list of books to look at and see if they want to entertain the idea of creating custom books

Kyle: Clarity on Apprentice registrations.

The way apprentices are registered with STBC and the way they are registered with your institution are two separate things.

STBC tracks apprentice registrations with STBC only not the registration of the apprentice in the course at the training provider. Unless the apprentice is registered to write an SLE or IP, often STBC will not know the apprentice has taken the course until the final grade has been submitted to them. For example, STBC won't know if a student is in say, level 2 until they are registered for an exam or until a final grade is sent in for the student. This also means that training providers need to ensure that the apprentice who is registering for a course at the institution has an active status with STBC and that they registering in the appropriate course level.

Final discussions.

Skilled Trades BC developed program curriculum needs

NOA, Redseal.ca, look at these sites to see what will be on Red Seal exam.

There needs to be common practice among all institutions to create common guidelines

- Articulation meeting minutes go straight to BCCAT not BCATTA (Dean's group)
- Maybe a Dean or Associate Dean can facilitate taking ideas that come up in the Articulation Meetings to BCATTA
- Next meeting? UFV will talk to the Dean
- Dave will follow up with Andrew and Craig
- Idea to send out a google doc re: schedules and everyone can fill theirs in
- Patrick: Happy to provide a tour of the automotive shop

Meeting adjourned: 1:10 pm

