IGEN Rev Up EV Exchange to New Zealand

Introduction

The IGEN Rev Up EV Exchange to New Zealand provided faculty members and administrators from Illinois community colleges the opportunity to gain hands-on experience, observe innovative teaching methods, and collaborate on best practices in electric vehicle (EV) education. Faculty visited Otago Polytechnic, Eastern Institute of Technology (EIT), Charge Net, and Andrew Simms Motor Group from December 2024—January 2025. This exchange strengthened faculty and administrator expertise, expanded competency-based learning approaches, and reinforced industry partnerships to advance EV training programs in Illinois.

Enhancing Faculty Expertise

Faculty participants reported gaining valuable instructional techniques and technical skills that will directly inform their teaching. Exposure to competency-based assessment models prompted discussions on integrating more flexible learning pathways within Illinois' EV programs. Faculty members are incorporating knowledge from the exchange into their labs and courses, ensuring students receive industry-relevant training. Administrators and faculty members are exploring implications for block courses and integration of more work-based learning in Illinois programs.

Key Takeaways:

- Adoption of new labs, including introduction of specific vehicle faults into electric vehicles and high-voltage battery tear-down inspections.
- Enhanced online course development paired with hands-on experiences in lab settings.
- Collaboration with international colleagues in different stages of EV program development, providing new perspectives on curriculum structure.

"My knowledge on EV topics has greatly improved. They have gone deeper into the topics than what we are normally used to doing." – Faculty Member

"I will definitely be using some of their ideas for bugging vehicles and the tear-down inspection of the high-voltage batteries. I will definitely be using that practical in my high voltage class." – Faculty Member

Advancing Competency-Based Learning and Modular Curriculum

The exchange emphasized the importance of aligning education with industry demands, a hallmark of Otago Polytechnic's approach. Faculty members noted the effectiveness of Otago's delivery method, which integrates online learning with hands-on applications in a block-course format.

Insights from Otago Polytechnic and EIT:

- Competency-based assessments and flexible delivery options could significantly improve EV curriculum in Illinois.
- Innovative lab setups and student engagement strategies provided a model for restructuring lab environments.

- Access to shared resources and continued collaboration with New Zealand institutions will support the development of new instructional resources.

"My experience at Otago Polytechnic provided valuable perspectives on enhancing our institution's program through curriculum design, lab integration, and delivery methods." – Faculty Member

"I am impressed with the various methods of meeting student needs, delivery of instruction, apprenticeships. My desire is that we can duplicate the block classes and delivery methods we learned more about at Otago!" – Administrator

Strengthening Industry Collaboration and Work-Based Learning

Faculty members observed how cutting-edge EV technology is applied in real-world automotive service settings, reinforcing the importance of industry partnerships in workforce training.

Notable Industry Observations:

- EIT's modular, station-based lab practices foster hands-on learning and efficiency.
- Andrew Simms Motor Group discussed real-world applications of EV technology, emphasizing adaptability in automotive service careers.
- The importance of integrating diagnostic skills and industry-standard equipment into curriculum development.
- Strength of the education to industry hiring practices ensuring nearly all students are employed and working in the automotive industry throughout the duration of their educational program.

"At Andrew Simms Motor Group, I observed how cutting-edge EV technology is applied in a real-world automotive service setting, emphasizing the importance of technical proficiency and adaptability in the workforce." – Faculty Member

"By working to create the strongest program they [Otago Polytechnic and EIT] can, they have proven that their program is a value-add to employers and technicians as both a manufacturer-neutral experience and as a hands-on experience that goes above-and-beyond the depth of many manufacturer programs." – Administrator

Enhancing Hands-On Lab Practices and Technical Training

The exchange reinforced the significance of practical lab experiences. Faculty noted that while there are similarities between the learning objectives in New Zealand and Illinois, differences in lab equipment availability highlighted the need for continued investment in EV training infrastructure.

Lab Enhancements from the Exchange:

- Adoption of diagnostic scenarios to simulate real-world EV system failures.
- Integration of shared lab manuals and instructional materials from EIT.
- Implementation of best practices in safety signage, operating procedures and testing equipment.

"I found the experiences related by the instructors offered some logical insight into the goals and curriculum that can lead to successful development of my HV [high voltage] curriculum. The sharing of course materials with our group will be helpful, as a proven course pathway will ensure quality instruction for my students." – Faculty Member

"[New Zealand training] labs are smaller, equipment is lacking for the delivery of the number of students they run through the program. If it was not for the Rev Up EV grant, automotive school programs in Illinois would be in the same situation or struggling to get caught up to industry advancement in the EV technologies." – Faculty Member

Exploring a Statewide Common EV Certificate

A significant outcome of the exchange was the recognition of the need for standardized EV training across Illinois. Faculty discussions centered on the importance of developing universal safety and instructional standards to ensure consistency in EV education.

Key Considerations for a Common Certificate:

- Establishment of universal safety and testing standards across institutions.
- Faculty-driven curriculum development that aligns with local employer needs while maintaining statewide consistency.
- Balance between hands-on learning and competency-based assessment to avoid reducing training to paper test-based evaluations.
- Ensure common certificates agree upon outcomes but are flexible and responsive to local employer need variations across the state and individual institutional adoption is on an opt-in basis.

"We need to follow up with each other and create this common curriculum as a group. IGEN has assembled a group of industry leaders that has the chance to lead Illinois to the best EV training in the nation." – Faculty Member

"A question only test does not provide industry with quality technicians. We must collectively create a new set of testing procedures that ensures qualified technicians. We should be moving toward a model that includes both a written test and hands on demonstration of knowledge. Not only will this provide our learners with more competencies it will ensure their safety in the high voltage environment." – Faculty Member

Conclusion

The IGEN Rev Up EV Faculty Exchange to New Zealand proved to be a transformative experience, equipping Illinois faculty with the knowledge, skills, and international partnerships necessary to elevate EV education. The insights gained will directly influence curriculum development, instructional methods, and industry collaboration, positioning Illinois as a leader in EV workforce training. Continued dialogue among faculty, industry leaders, and educational institutions will be critical in implementing these advancements and ensuring Illinois' EV programs remain at the forefront of technological innovation.

IGEN Rev Up EV NZ Exchange Participant Feedback

Aspects Participants Found Beneficial

1. Balanced Programming – Participants appreciated the structured mix of intensive training, cultural experiences, and personal time, allowing for both deep learning and reflection.
2. Cross-Institutional Collaboration – The exchange fostered valuable networking and knowledge-sharing among educators, providing insights into best practices, innovative teaching methods, and curriculum development strategies.
3. International Learning Perspective – Exposure to New Zealand's approach to EV education and sustainability helped participants identify common challenges and discover alternative solutions for implementation in their own institutions.
4. Group Size & Engagement – Keeping the group under 20 participants ensured meaningful discussions, productive networking, and strong peer connections that enhanced the learning experience. Ensuring inclusion of faculty and administrators to ensure cohesiveness and support for program development and operation.
5. Practical Takeaways – Many participants left with actionable ideas to improve their courses, update curricula, and integrate new instructional methods into their programs.

Suggested Changes for Future Exchanges

1. More Hands-On Collaboration – Participants suggested incorporating additional practical workshops, lab simulations, and joint problem-solving sessions to enhance the technical learning experience.
2. Scheduling Adjustments – Some recommended not holding the exchange during a break or holiday to increase host faculty participation and additional employer and government engagement.
3. Exposure to Industry Partnerships – Enhanced understanding of cultivating industry partnerships to enhance employer partnership development between Illinois community colleges and employers. Adding additional visits to dealerships and independent shops to provide additional understanding of coordination and structuring of the second year work-based learning component of the automotive degree program.
4. Trip Logistics & Duration – Reduce travel across multiple locations to avoid fatigue and potentially reduce the program length by one day to make participation more manageable.
5. Enhanced Educational Context – Provide the faculty track with additional insights into New Zealand's education system, political structure, and EV policies to provide a more holistic understanding of the environment similar to the discussion on the administrative track.
6. Follow-Up Engagement – Virtual check-ins post-exchange could help track the implementation of ideas and ensure sustained collaboration.

Future Exchange Recommendations

There was overwhelming support for IGEN to continue leading similar international exchanges, citing their value in professional development, global perspective, and practical curriculum development assistance. Recommended focus areas for future exchanges include:

1. Advanced EV Technologies – Covering battery diagnostics, autonomous EVs, and advanced powertrain systems.

2. Sustainability & Energy Storage – Exploring how EV technology integrates with renewable energy storage solutions.
3. Industry Partnerships & Workforce Development – Strengthening relationships with manufacturers and exploring new training models.
4. Alternative Propulsion Systems – Investigating the role of hydrogen fuel cells and other emerging technologies in transportation.
5. Global Automotive Training Models – Expanding exchanges to Germany, Japan, and South Korea might provide a deeper understanding of EV innovation and infrastructure. These nations are home to leading automotive manufacturers and have heavily invested in EV technologies, research, and public transportation systems. Visits to their manufacturing plants, research facilities, and government-backed initiatives could offer valuable lessons on scaling up and integrating EV systems on a national level.

Conclusion

The IGEN Rev Up EV NZ Exchange was highly successful, providing valuable learning experiences, networking opportunities, and direct curriculum insights. Future exchanges should focus on enhancing hands-on training, refining logistics, incorporating policy discussions, and fostering ongoing collaboration. With these refinements, IGEN can continue to strengthen EV education and workforce development on a global scale.