



NJ PATHWAYS
TO CAREER OPPORTUNITIES
Aligning Education to Build an Innovative Workforce

Thank you for joining us. Please take this time to mute yourself.



NJ PATHWAYS
TO CAREER OPPORTUNITIES
Aligning Education to Build an Innovative Workforce

YEAR 2 PROGRESS UPDATE

Center of Workforce Innovation for
Electric Vehicles

WELCOMING REMARKS

Catherine Starghill, Esq.

Vice President

*New Jersey Council of
County Colleges*

Executive Director

*New Jersey Community College
Consortium for Workforce &
Economic Development*



AGENDA

**Electric Vehicle Pathway
Projects Year 2 Update**

Q&A

Upcoming Events



Our Education Partners

- **Applied Technology High School**
- **Bergen Community College**
- **Bergen County Technical School - Teterboro**
- **Camden County College**
- **Camden County Technical High School**
- **John Dwyer Technology Academy**
- **Raritan Valley Community College**



Center of Workforce Innovation for Electric Vehicles

PJ Ricatto, Lead Institution Representative
Bergen Community College





Integration and Pilot of New EV Technician ASE Standards (High School & Community College Non-Credit)

Andy McAlpin, Camden County Technical Schools

EDUCATION PARTNERS:

**Camden County
College**

**Camden County
Technical High
School**

Integration and Pilot of New EV Technician ASE Standards (High School & Community College Non-Credit)

Integration and piloting of new ASE (Automotive Service Excellence) Electric Vehicle safety standards into non-credit certificate programs within the Automotive Technology program at Camden County College (CCC) and Camden County Technical High School (CTHS).

Development of two stackable courses at CCC and groundwork for adding an advanced-level light-duty hybrid/electric vehicle course aligned with ASE High-Voltage Electrical Safety Standards for EVs.



PATHWAY CONNECTIONS:

Big Idea Different than the Work Done in Year 1

Connection to High School (Non-Credit)

Connection to High School (Dual Enrollment)

Community College (Non Credit)

Community College (Credit)

Apprenticeship Development

PLA for Apprenticeship RTI

PLA

Connection between Community Colleges (1+1)

Experiential Learning

Connection to CBOs

Adult Learners

Adult Literacy

Connection to 4-Yr College/University

Professional Development

Pilot

Integration and Pilot of New EV Technician ASE Standards (High School & Community College Non-Credit)

This project integrates high voltage electrical safety standards into the automotive curriculum of a National Automotive Technicians Education Foundation (NATEF) accredited high school.

Transitioning from high school, the pathway extends into community college education, catering to non-credit learners seeking to deepen their understanding of working safely with Electric Vehicles.

Comprehensive curriculum development of three courses, each building upon the foundational knowledge and skills acquired in the preceding one, providing a cohesive learning pathway for students.

- Course 1 will be integrated into high school NATEF automotive curriculum and focuses on establishing high voltage electrical safety standards.**
- Course 2, titled ASE Electrified Propulsion Vehicles (xEV) Level One – Electrically Aware Person, will deepen learners' understanding of safety awareness when working with xEVs and their high-voltage components.**
- Course 3, ASE Electrified Propulsion Vehicles (xEV) Level Two – High Voltage Vehicle Technician, will advance students' technical proficiency in working with xEVs.**

PATHWAY CONNECTIONS:

Big Idea Different than the Work Done in Year 1

Connection to High School (Non-Credit)

Connection to High School (Dual Enrollment)

Community College (Non Credit)

Community College (Credit)

Apprenticeship Development

PLA for Apprenticeship RTI

PLA

Connection between Community Colleges (1+1)

Experiential Learning

Connection to CBOs

Adult Learners

Adult Literacy

Connection to 4-Yr College/University

Professional Development

Pilot

Integration and Pilot of New EV Technician ASE Standards (High School & Community College Non-Credit)

ASE Instructor Training Conference

- Valuable platform for gathering the latest EV standards and networking with industry experts.

Future Professional Development Sessions

- Organizing training at Camden County College led by Mike Cohen, developer of EV standards for ASE, to enhance further understanding and implementation of the curriculum.
- Open house sessions for all automotive teachers interested in EV technology.



Expert Collaborator

Developing the EV standards and curriculum involved collaborating with industry experts. Pictured L to R: Matt Shepanek from ASE, responsible for new EV standards and testing at ASE, Andrew McAlpin from CCC and CCTS, Jim Doyle from Audi USA, and Rob Delaney, a former VW specialist and current high school auto teacher in Brighton, Michigan.

PATHWAY CONNECTIONS:

Big Idea Different than the Work Done in Year 1

Connection to High School (Non-Credit)

Connection to High School (Dual Enrollment)

Community College (Non Credit)

Community College (Credit)

Apprenticeship Development

PLA for Apprenticeship RTI

PLA

Connection between Community Colleges (1+1)

Experiential Learning

Connection to CBOs

Adult Learners

Adult Literacy

Connection to 4-Yr College/University

Professional Development

Pilot

Integration and Pilot of New EV Technician ASE Standards (High School & Community College Non-Credit)

The pilot program will commence once the curriculum is board approved (anticipate April 2024) at CTHS high school with 8 to 10 students. This will be led by Bruce Berger, an adjunct faculty automotive instructor with CCC and an automotive teacher at CCTS.

Additionally, a pilot program for adult non-credit courses at the CCC Technical Institute is anticipated to run late May or early June with 15 students. The participant makeup will include high school students and adult learners already enrolled in the CCC Technical Institute non-credit automotive program.

Words of advice:

- **Secure Board approval.**
- **Research extensively on EV technology.**
- **Compile information on multiple types of vehicles.**
- **Align curriculum with teachable standards.**



Integration and Pilot of New EV Technician ASE Standards (Community College Non-Credit to Credit)

Wayne Moschella, Raritan Valley Community College

EDUCATION PARTNERS:

**Raritan Valley
Community College**

Integration and Pilot of New EV Technician ASE Standards (Community College Non-Credit to Credit)

The 60-credit Associate of Applied Science degree in Automotive Technology at Raritan Valley Community College (RVCC) currently contains one two-credit course in hybrid/electric vehicles. The planned expansion of the college's Workforce Training Center will more than double the footprint of the Automotive Technology program and will support a substantial increase in hybrid/electric instruction. Significant curriculum and program development in the area of hybrid/electric vehicles will be required to meet the evolving needs of industry and make effective use of the expanded automotive lab.

RVCC will develop three stackable courses aligned with the three new ASE High-Voltage Electrical Safety Standards for EV Vehicles. These courses will be designed to provide non-credit professional development opportunities for working automotive technicians and will lead to the attainment of a micro-credential in Hybrid/Electric Vehicles. In addition to providing valuable training for incumbent workers, these courses will fulfill a credit requirement in a planned Certificate of Completion in Hybrid/Electric Vehicles that will be available as an add-on to the existing AAS degree.



PATHWAY CONNECTIONS:

Big Idea Different than the Work Done in Year 1

Connection to High School (Non-Credit)

Connection to High School (Dual Enrollment)

Community College (Non Credit)

Community College (Credit)

Apprenticeship Development

PLA for Apprenticeship RTI

PLA

Connection between Community Colleges (1+1)

Experiential Learning

Connection to CBOs

Adult Learners

Adult Literacy

Connection to 4-Yr College/University

Professional Development

Pilot

Integration and Pilot of New EV Technician ASE Standards (Community College Non-Credit to Credit)

Creation of new three electric vehicle courses aligned with ASE standards:

- **Gathering data & input to include in the courses.**
- **Visiting electric vehicle locations.**

Credit and non-credit versions of the courses will be created to meet the needs of different partners and student populations. The courses are expected to run in Summer 2025.

Challenges:

- **ASE has not released the standards for the xEV Level Three High Voltage Vehicle and Battery Technician exam.**
- **Difficult to determine the equipment and supplies necessary to ensure that the facility and courses meet the standards.**
- **Delay of work due to an unexpected personal situation.**

Solutions:

- **Level Three course will be designed once the standards are released.**
- **Extensive conversations with industry partners and stakeholders, as well as visits to other facilities.**

PATHWAY CONNECTIONS:

Big Idea Different than the Work Done in Year 1

Connection to High School (Non-Credit)

Connection to High School (Dual Enrollment)

Community College (Non Credit)

Community College (Credit)

Apprenticeship Development

PLA for Apprenticeship RTI

PLA

Connection between Community Colleges (1+1)

Experiential Learning

Connection to CBOs

Adult Learners

Adult Literacy

Connection to 4-Yr College/University

Professional Development

Pilot

Integration and Pilot of New EV Technician ASE Standards (Community College Non-Credit to Credit)

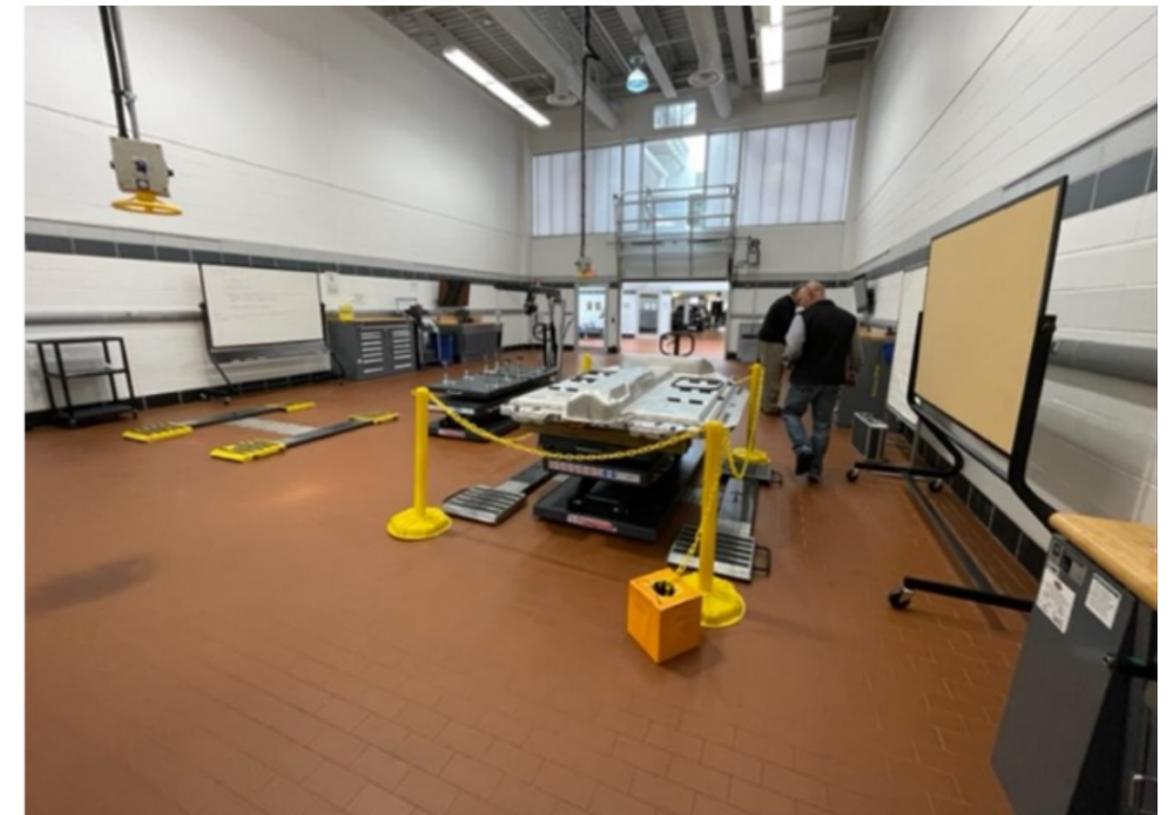
Ancillary outcomes:

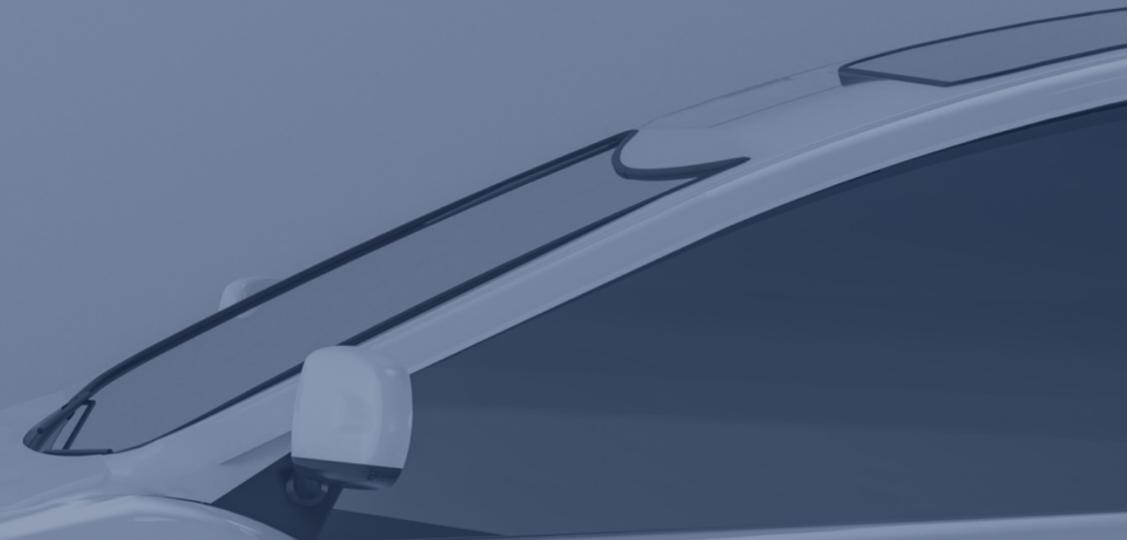
- Further networking within the industry.
- Extensive knowledge gained regarding EV standards, requirements for training facilities, and other training programs.

Words of advice:

Take the time to do the research: speak to industry partners and other training programs; research publications and industry standards.

There's a wealth of knowledge out there and we're all in this together!





EV Rover and EV Go-Kart Design Challenge Pilots

PJ Ricatto, Bergen Community College

Steve Cohen, Applied Technology High School

Eric Buser, Bergen County Technical School - Teterboro

Yuriy Zeykan, John Dwyer Technology Academy

EDUCATION PARTNERS:

**Bergen Community
College**

**Applied Technology
High School**

**Bergen County
Technical School -
Teterboro**

**John Dwyer
Technology Academy**

EV Rover and EV Go-Kart Design Challenge Pilots

The EV Rover Laboratories created in Pathways Year 1 is being piloted in Engineering Workshop-9 at Applied Technology High School (BCTS) in both the fall and spring of Academic Year 2023-2024.

The EV Go-Kart design challenge created in Year 1 is being piloted at our three participating high schools for a full year: (1) Applied Technology High School (Paramus), (2) Bergen County Technical School (Teterboro), and (3) John Dwyer Technology Academy (Elizabeth). In addition to creating awareness regarding Electric Vehicles, the pilot will culminate in a design and performance competition among participating high schools at Bergen Community College each June.



PATHWAY CONNECTIONS:

Big Idea Different than the Work Done in Year 1

Connection to High School (Non-Credit)

Connection to High School (Dual Enrollment)

Community College (Non Credit)

Community College (Credit)

Apprenticeship Development

PLA for Apprenticeship RTI

PLA

Connection between Community Colleges (1+1)

Experiential Learning

Connection to CBOs

Adult Learners

Adult Literacy

Connection to 4-Yr College/University

Professional Development

Pilot

EV Rover and EV Go-Kart Design Challenge Pilots

EV Rover Awareness Laboratory at Applied Technology High School (ATHS):

- Administered EV Lab content to two ATHS freshmen cohorts.
- Determined best sequence of content delivered.
- Noted student engagement and retention through formative and summative assessments.
- Adapted content to present foundational material earlier in semester.

Challenges:

- Durability of equipment.
- Ease of implementation of multiple R/C vehicles.
- Pre-built vs kit building.
- Retention and application of concepts and how they relate to all electric vehicles.

Outcomes from pilot:

- Complete year one course work and use participant feedback to improve learning outcomes for year two.
- A sustainable project-based curriculum that can be used in the course for years to come.
- Documentation to allow instructors elsewhere to readily adopt the curriculum.

PATHWAY CONNECTIONS:

Big Idea Different than the Work Done in Year 1

Connection to High School (Non-Credit)

Connection to High School (Dual Enrollment)

Community College (Non Credit)

Community College (Credit)

Apprenticeship Development

PLA for Apprenticeship RTI

PLA

Connection between Community Colleges (1+1)

Experiential Learning

Connection to CBOs

Adult Learners

Adult Literacy

Connection to 4-Yr College/University

Professional Development

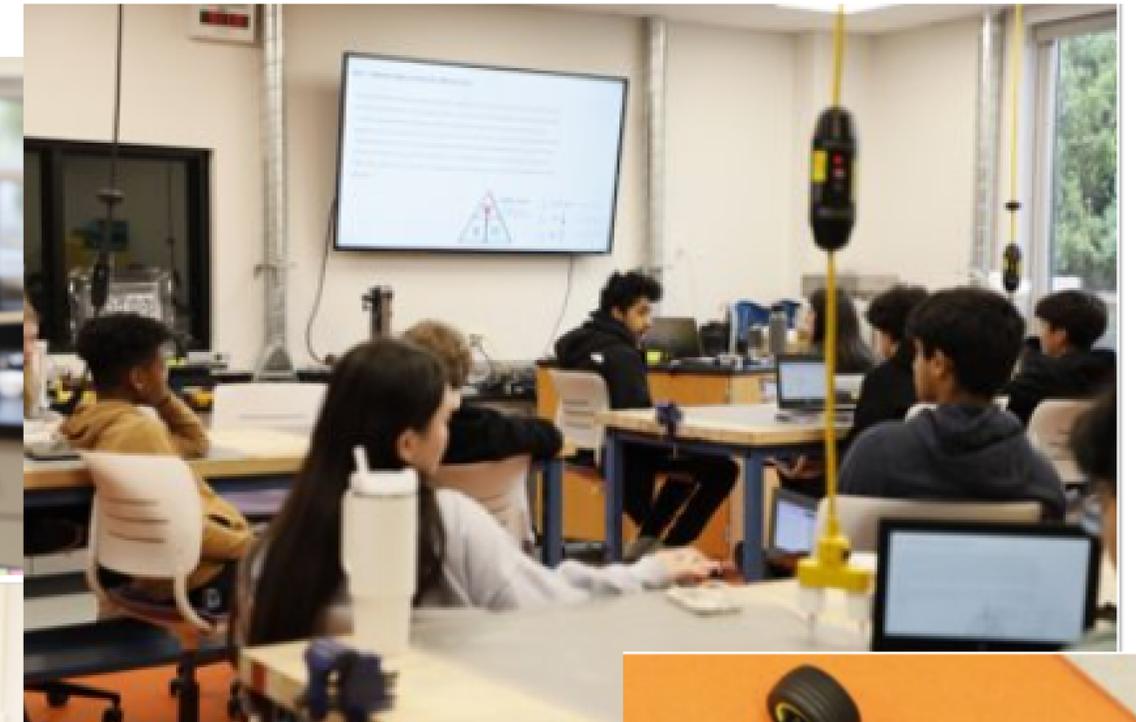
Pilot

EV Rover and EV Go-Kart Design Challenge Pilots

EV Rover Awareness Laboratory

Steven Cohen, Applied Technology High School

Student Participation Academic Year 2023-24



PATHWAY CONNECTIONS:

Big Idea Different than the Work Done in Year 1

Connection to High School (Non-Credit)

Connection to High School (Dual Enrollment)

Community College (Non Credit)

Community College (Credit)

Apprenticeship Development

PLA for Apprenticeship RTI

PLA

Connection between Community Colleges (1+1)

Experiential Learning

Connection to CBOs

Adult Learners

Adult Literacy

Connection to 4-Yr College/University

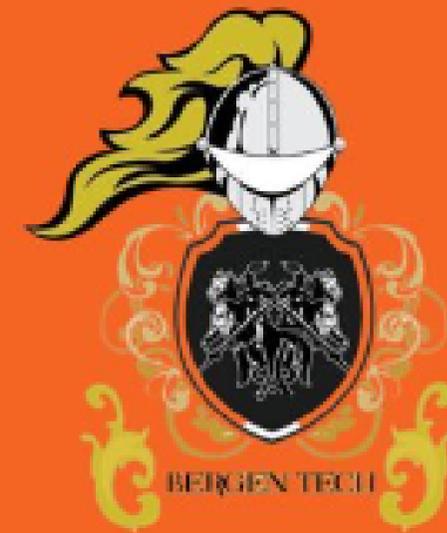
Professional Development

Pilot

EV Rover and EV Go-Kart Design Challenge Pilots

EV Go-Kart Design Challenge at Bergen County Technical School (BCTS) - Teterboro

Bergen Tech Electric Go-Kart



PATHWAY CONNECTIONS:

Big Idea Different than the Work Done in Year 1

Connection to High School (Non-Credit)

Connection to High School (Dual Enrollment)

Community College (Non Credit)

Community College (Credit)

Apprenticeship Development

PLA for Apprenticeship RTI

PLA

Connection between Community Colleges (1+1)

Experiential Learning

Connection to CBOs

Adult Learners

Adult Literacy

Connection to 4-Yr College/University

Professional Development

Pilot

EV Rover and EV Go-Kart Design Challenge Pilots

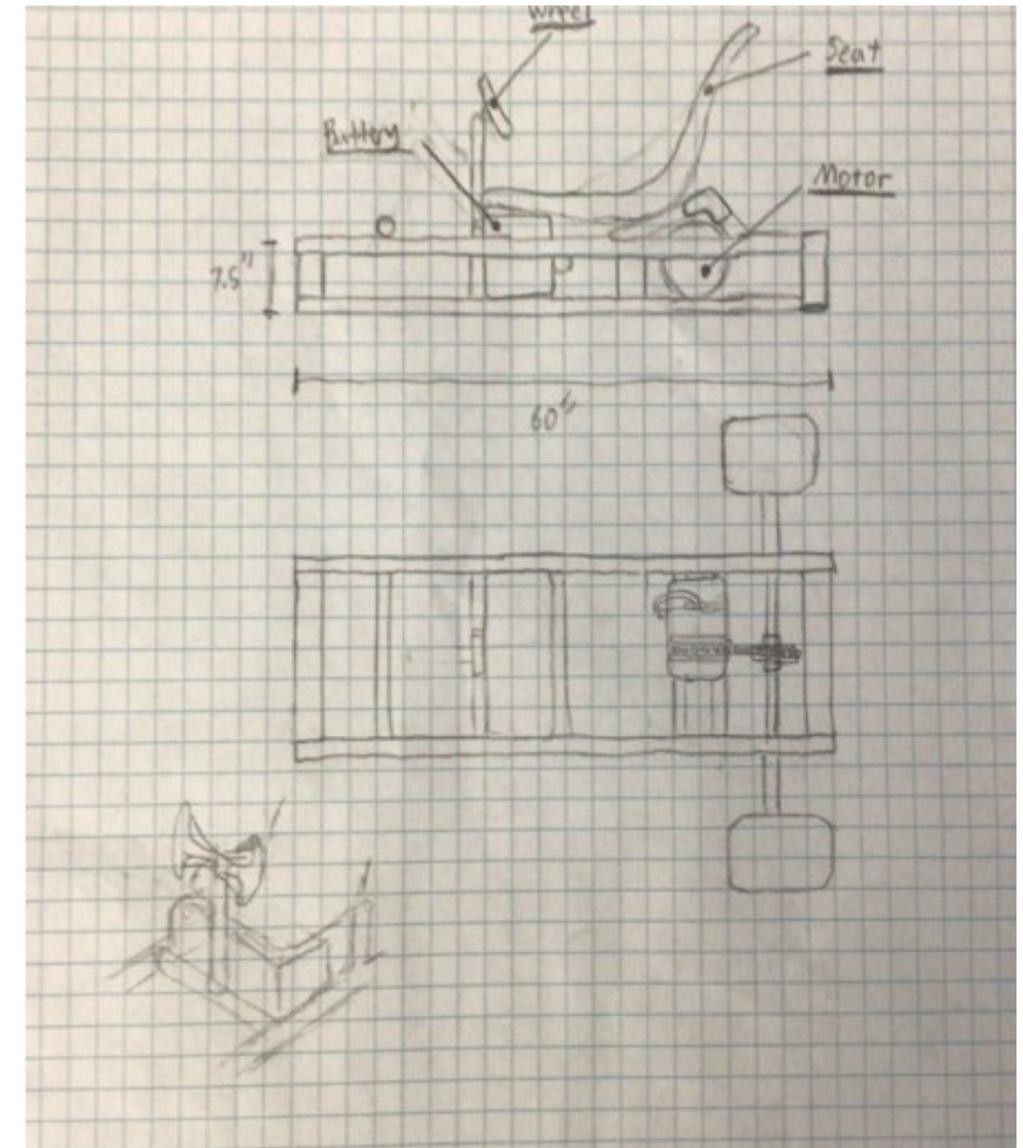
EV Go-Kart Design Challenge at Bergen County Technical School (BCTS) - Teterboro

Students are in 2 teams of 8. Each team has 2 students working on the following categories:

- Frame Design
- Motor/Battery
- Steering/Braking
- Drive-Train/Wheels

Students have:

- 3D modeled many components in order to make complete models of their go-karts.
- Started hand sketching frames.
- Practiced bending, cutting, and drilling EMT conduit.
- Conducted research on DC motors and motor controllers.



PATHWAY CONNECTIONS:

Big Idea Different than the Work Done in Year 1

Connection to High School (Non-Credit)

Connection to High School (Dual Enrollment)

Community College (Non Credit)

Community College (Credit)

Apprenticeship Development

PLA for Apprenticeship RTI

PLA

Connection between Community Colleges (1+1)

Experiential Learning

Connection to CBOs

Adult Learners

Adult Literacy

Connection to 4-Yr College/University

Professional Development

Pilot

EV Rover and EV Go-Kart Design Challenge Pilots

EV Go-Kart Design Challenge at Bergen County Technical School (BCTS) - Teterboro

Challenges:

- **Getting tax exempt quotes from non-state approved vendors.**
- **Some components are out of stock such as the battery box/bms unit.**
- **Using the maker pipe and EMT conduit for frame design. Students are stuck on how to connect components to this set-up without welding.**

Pilot Outcomes:

- **Completed year one EV Go-Kart ready for Design Challenge competition @ BCC in June.**
- **A sustainable project-based curriculum component that can be used in the course for years to come.**
- **Documentation to allow other instructors to more readily adopt the curriculum.**

PATHWAY CONNECTIONS:

Big Idea Different than the Work Done in Year 1

Connection to High School (Non-Credit)

Connection to High School (Dual Enrollment)

Community College (Non Credit)

Community College (Credit)

Apprenticeship Development

PLA for Apprenticeship RTI

PLA

Connection between Community Colleges (1+1)

Experiential Learning

Connection to CBOs

Adult Learners

Adult Literacy

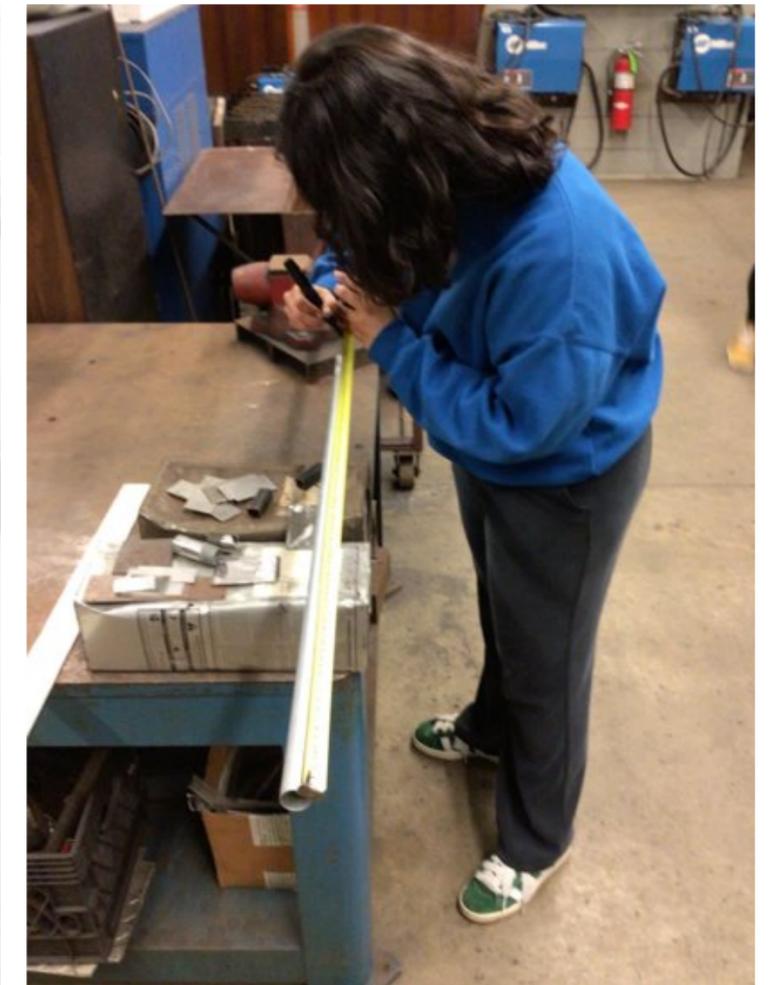
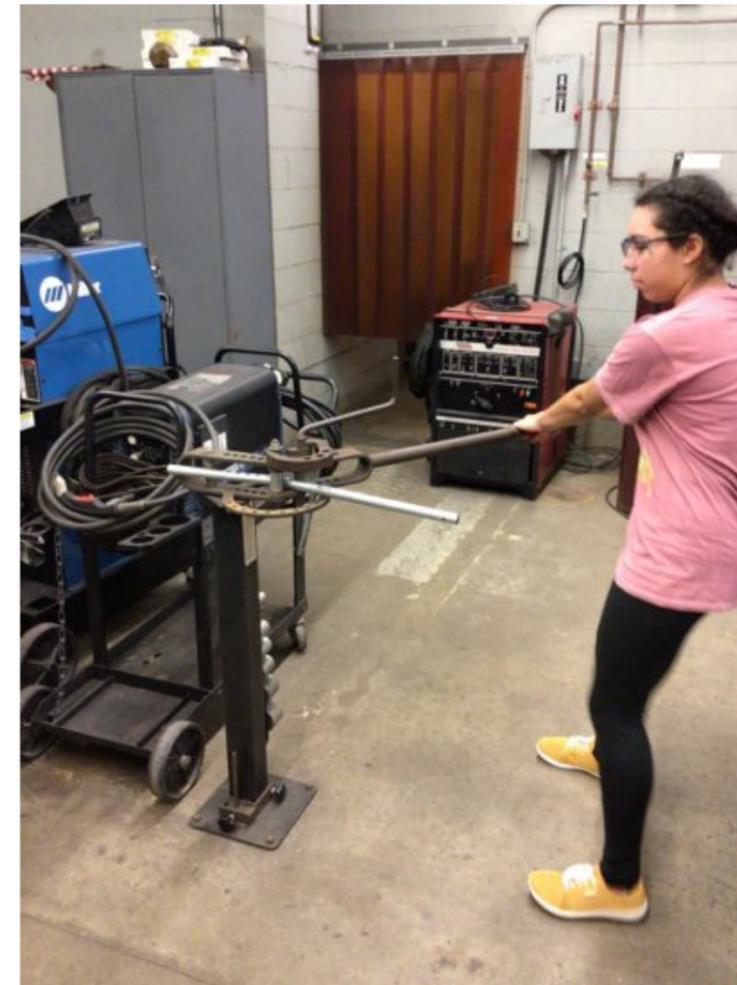
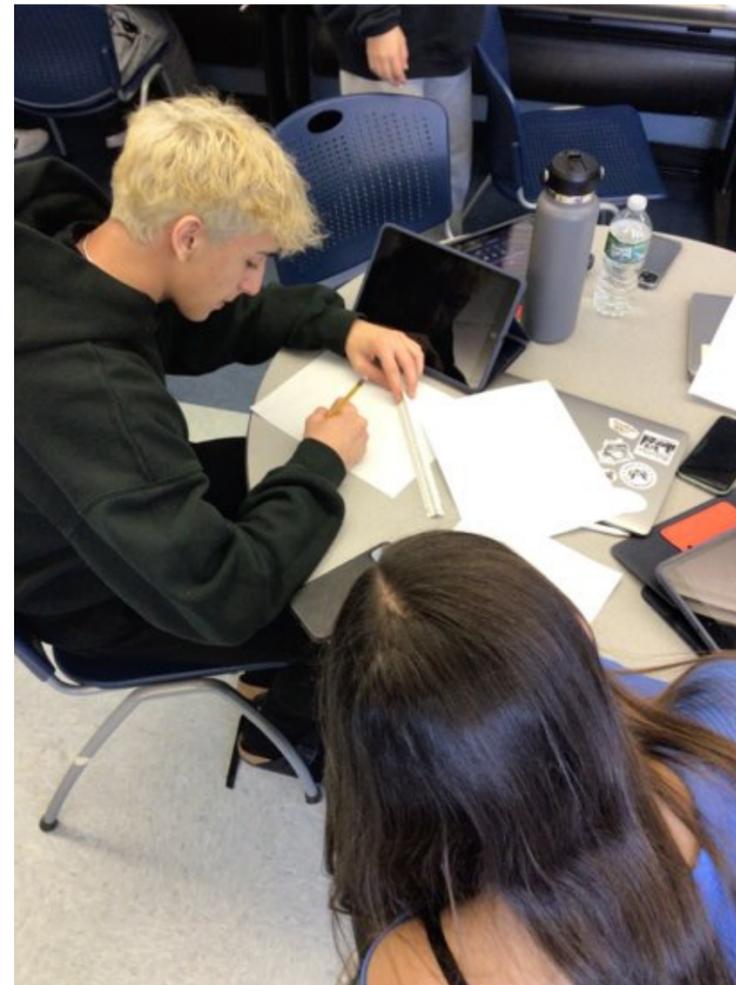
Connection to 4-Yr College/University

Professional Development

Pilot

EV Rover and EV Go-Kart Design Challenge Pilots

Bergen County Technical School Teterboro students working



PATHWAY CONNECTIONS:

Big Idea Different than the Work Done in Year 1

Connection to High School (Non-Credit)

Connection to High School (Dual Enrollment)

Community College (Non Credit)

Community College (Credit)

Apprenticeship Development

PLA for Apprenticeship RTI

PLA

Connection between Community Colleges (1+1)

Experiential Learning

Connection to CBOs

Adult Learners

Adult Literacy

Connection to 4-Yr College/University

Professional Development

Pilot

EV Rover and EV Go-Kart Design Challenge Pilots

EV Go-Kart Design Challenge at Applied Technology High School (Paramus)



PATHWAY CONNECTIONS:

Big Idea Different than the Work Done in Year 1

Connection to High School (Non-Credit)

Connection to High School (Dual Enrollment)

Community College (Non Credit)

Community College (Credit)

Apprenticeship Development

PLA for Apprenticeship RTI

PLA

Connection between Community Colleges (1+1)

Experiential Learning

Connection to CBOs

Adult Learners

Adult Literacy

Connection to 4-Yr College/University

Professional Development

Pilot

EV Rover and EV Go-Kart Design Challenge Pilots

EV Go-Kart Design Challenge at Applied Technology High School (Paramus)

Accomplishments:

Students were able to build a maker pipe frame with significant structural rigidity. Diagonal bracing was an effective solution to reinforce the thin-wall tubing.

Challenges:

Mounting of the rear axle, drive train, and front steering components using only bolt-together methods will require creative problem solving, and multiple iterations.

Pilot Outcomes:

- Completed year one EV Go-Kart ready for Design Challenge competition at Bergen Community College in June.
- A sustainable project-based curriculum component that can be used in the course for years to come.
- Documentation to allow other instructors to more readily adopt the curriculum.



PATHWAY CONNECTIONS:

Big Idea Different than the Work Done in Year 1

Connection to High School (Non-Credit)

Connection to High School (Dual Enrollment)

Community College (Non Credit)

Community College (Credit)

Apprenticeship Development

PLA for Apprenticeship RTI

PLA

Connection between Community Colleges (1+1)

Experiential Learning

Connection to CBOs

Adult Learners

Adult Literacy

Connection to 4-Yr College/University

Professional Development

Pilot

EV Rover and EV Go-Kart Design Challenge Pilots

EV Go-Kart Design Challenge at Applied Technology High School (Paramus)



PATHWAY CONNECTIONS:

Big Idea Different than the Work Done in Year 1

Connection to High School (Non-Credit)

Connection to High School (Dual Enrollment)

Community College (Non Credit)

Community College (Credit)

Apprenticeship Development

PLA for Apprenticeship RTI

PLA

Connection between Community Colleges (1+1)

Experiential Learning

Connection to CBOs

Adult Learners

Adult Literacy

Connection to 4-Yr College/University

Professional Development

Pilot

EV Rover and EV Go-Kart Design Challenge Pilots

EV Go-Kart Design Challenge at Applied Technology High School (Paramus)



PATHWAY CONNECTIONS:

Big Idea Different than the Work Done in Year 1

Connection to High School (Non-Credit)

Connection to High School (Dual Enrollment)

Community College (Non Credit)

Community College (Credit)

Apprenticeship Development

PLA for Apprenticeship RTI

PLA

Connection between Community Colleges (1+1)

Experiential Learning

Connection to CBOs

Adult Learners

Adult Literacy

Connection to 4-Yr College/University

Professional Development

Pilot

EV Rover and EV Go-Kart Design Challenge Pilots

EV Go-Kart Design Challenge at Applied Technology High School (Paramus)



PATHWAY CONNECTIONS:

Big Idea Different than the Work Done in Year 1

Connection to High School (Non-Credit)

Connection to High School (Dual Enrollment)

Community College (Non Credit)

Community College (Credit)

Apprenticeship Development

PLA for Apprenticeship RTI

PLA

Connection between Community Colleges (1+1)

Experiential Learning

Connection to CBOs

Adult Learners

Adult Literacy

Connection to 4-Yr College/University

Professional Development

Pilot

EV Rover and EV Go-Kart Design Challenge Pilots

EV Go-Kart Design Challenge at Applied Technology High School (Paramus)



PATHWAY CONNECTIONS:

Big Idea Different than the Work Done in Year 1

Connection to High School (Non-Credit)

Connection to High School (Dual Enrollment)

Community College (Non Credit)

Community College (Credit)

Apprenticeship Development

PLA for Apprenticeship RTI

PLA

Connection between Community Colleges (1+1)

Experiential Learning

Connection to CBOs

Adult Learners

Adult Literacy

Connection to 4-Yr College/University

Professional Development

Pilot

EV Rover and EV Go-Kart Design Challenge Pilots

EV Go-Kart Design Challenge at John E. Dwyer Technology Academy & Thomas Edison Career and Technical Academy



PATHWAY CONNECTIONS:

Big Idea Different than the Work Done in Year 1

Connection to High School (Non-Credit)

Connection to High School (Dual Enrollment)

Community College (Non Credit)

Community College (Credit)

Apprenticeship Development

PLA for Apprenticeship RTI

PLA

Connection between Community Colleges (1+1)

Experiential Learning

Connection to CBOs

Adult Learners

Adult Literacy

Connection to 4-Yr College/University

Professional Development

Pilot

EV Rover and EV Go-Kart Design Challenge Pilots

EV Go-Kart Design Challenge at John E. Dwyer Technology Academy & Thomas Edison Career and Technical Academy

Accomplishments:

- **We have created an interdisciplinary and cross curriculum project encompassing two high schools in district along with two different programs.**
- **Successfully ordered parts and components from the following vendors: BMI Karts & Parts, Big Battery, and Thunderstruck Motors LLC.**
- **On site presentation from PJ was extremely useful and informative. Lots of building questions and concerns were noted and discussed.**

Challenges:

- **After school meeting is always a challenge as students' schedules are staggered and the dismissal times of the two high schools are different.**
- **Delivery of orders are still pending and awaiting shipment.**
- **Build time concerns are also challenging in accommodating and combining the students from two programs from two different locations.**

PATHWAY CONNECTIONS:

Big Idea Different than the Work Done in Year 1

Connection to High School (Non-Credit)

Connection to High School (Dual Enrollment)

Community College (Non Credit)

Community College (Credit)

Apprenticeship Development

PLA for Apprenticeship RTI

PLA

Connection between Community Colleges (1+1)

Experiential Learning

Connection to CBOs

Adult Learners

Adult Literacy

Connection to 4-Yr College/University

Professional Development

Pilot

EV Rover and EV Go-Kart Design Challenge Pilots



PATHWAY CONNECTIONS:

Big Idea Different than the Work Done in Year 1

Connection to High School (Non-Credit)

Connection to High School (Dual Enrollment)

Community College (Non Credit)

Community College (Credit)

Apprenticeship Development

PLA for Apprenticeship RTI

PLA

Connection between Community Colleges (1+1)

Experiential Learning

Connection to CBOs

Adult Learners

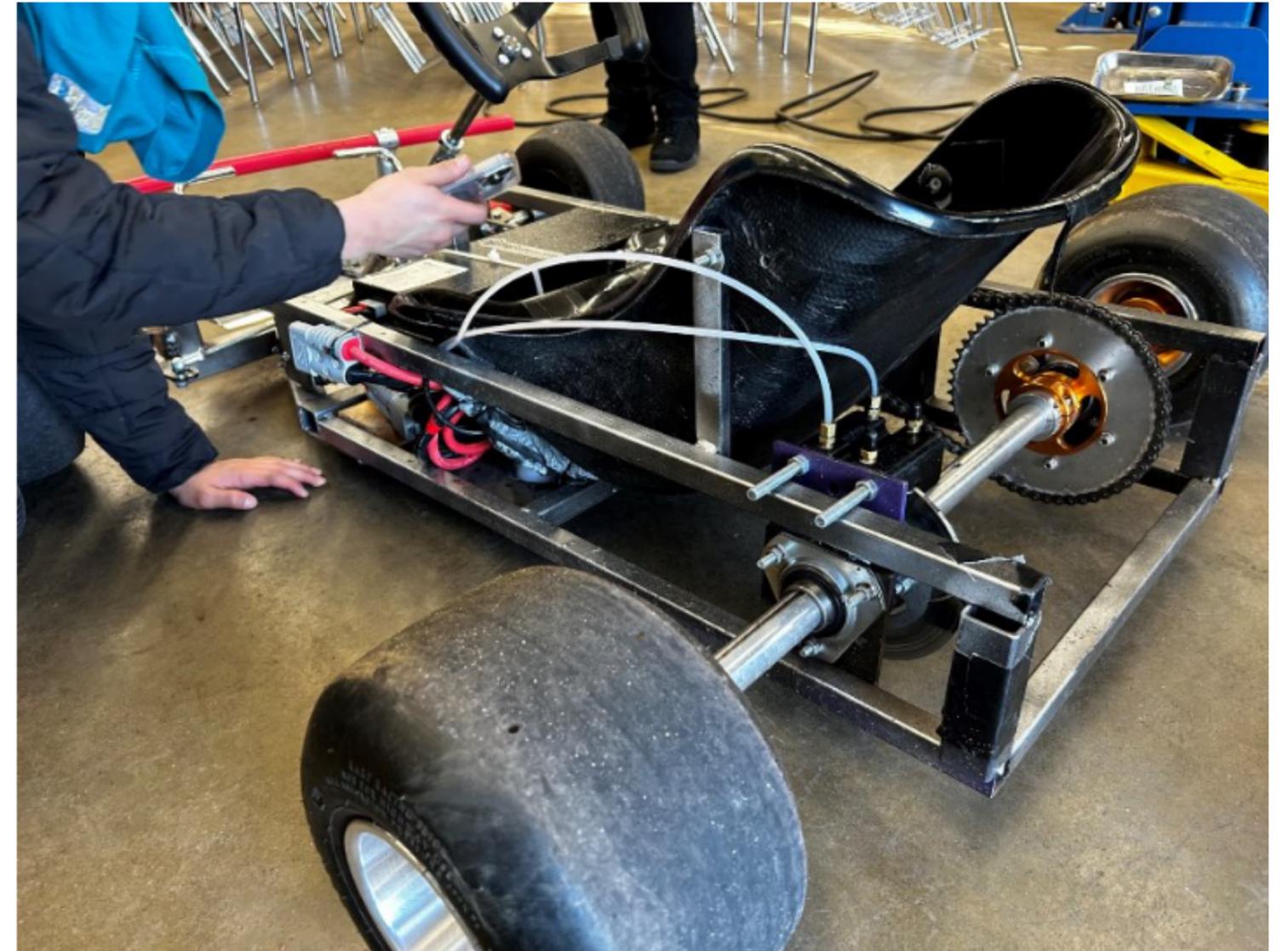
Adult Literacy

Connection to 4-Yr College/University

Professional Development

Pilot

EV Rover and EV Go-Kart Design Challenge Pilots





Q&A

Center of Workforce Innovation for Electric Vehicles

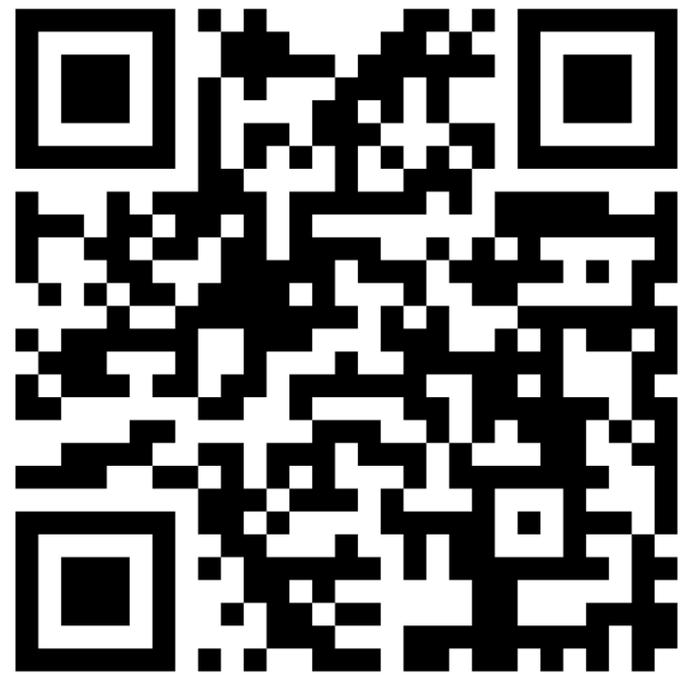


Closing Remarks

Catherine Starghill, Esq.



UPCOMING EVENTS



STATEWIDE INDUSTRY COLLABORATIVE MEETINGS

Various Virtual Meeting Dates Spanning From
Monday, March 25, to Thursday, March 28





NJ PATHWAYS **SUMMIT**
TO CAREER OPPORTUNITIES **2024**
Aligning Education to Build an Innovative Workforce

Expanding **Innovative**

Education & Workforce Partnerships

Bally's Atlantic City
Hotel & Casino
June 12, 2024

NJPathways.org



NJ PATHWAYS
TO CAREER OPPORTUNITIES
Aligning Education to Build an Innovative Workforce

#NJPATHWAYS

**FOLLOW
ALONG**



NJPathways.org



@NJCommColleges



@NJ Community Colleges



@NJCommColleges



@NJCommColleges



@NJCommColleges