INFRASTRUCTURE & ENERGY

Centers of Workforce Innovation for:

Renewable Energy

Construction

NJ PATHWAYS
TO CAREER OPPORTUNITIES

YEAR ONE

Industry Partners

Education Partners

COMMUNITY COLLEGES

Atlantic Cape Community College

Bergen Community College

Brookdale Community College

Camden County College

Essex County College

Hudson County Community College

Mercer County Community College

Middlesex College

County College of Morris

Ocean County College

Passaic County Community College

Raritan Valley Community College

Rowan College at Burlington County

Rowan College of South Jersey

Salem Community College

Sussex County Community College

Union College of Union County, NJ

8 FOUR-YEAR COLLEGES & UNIVERSITIES

Adelphi University (NY)

Broward College (FL)

Fairleigh Dickinson University

New Jersey Institute of Technology (NJIT)

Ramapo College of New Jersey

Rutgers University

Rowan University

Thomas Edison State University

William Paterson University

20 HIGH SCHOOLS

Applied Technical High School at Bergen Community College

Bergen County Technical High Schools (Paramus Campus)

Bound Brook High School

Cape May County Technical High School

Cumberland County Technical Education Center

Essex County Schools of Technology

Franklin Township High School

Gloucester County Institute of Technology

Hopatcong High School

Hudson County Schools of Technology

Jersey City Public Schools

Kearny High School

Manville High School

Middlesex County Magnet Schools

Morris County School of Technology

Newton High School

Somerset County Vocational Technical Schools

Sussex County Technical School

Thomas Edison Energysmart Charter School

William L Dickinson High School

8 LABOR UNIONS

Eastern Atlantic States Regional Council of Carpenters

International Brotherhood of Electrical Workers Local 102

International Brotherhood of Electrical Workers Local 269

International Union of Operating Engineers Local 825

Ironworkers Local Union 399

NJ Administrative District Council of Bricklayers and Allied Craftworkers

Heat and Frost Insulators and Allied Workers Local 32

Sheet Metal Workers International Association Local Union 25

4 OTHER PARTNERS

Bergen Community College - NJ EcosySTEM (NJ Nest)

Health Information Management Systems Society

New Jersey Coalition of Automotive Retailers (NJ CAR)

Project Self Sufficiency

Rowan University/Rutgers–Camden Board of Governors

EXECUTIVE SUMMARY

NJ Pathways To Career Opportunities

New Jersey's Community Colleges and the New Jersey Business and Industry Association (NJBIA) have joined together to launch an unprecedented education and training pathways initiative that will strengthen the state's workforce for residents, businesses, and the economy for years to come.

This initiative, NJ Pathways to Career Opportunities: Aligning Education to Build an Innovative Workforce, brings together employers, industry associations, labor unions, education institutions, and workforce development partners to provide students and workers with the education and career pathways they need to find new careers and opportunities to achieve a competitive wage, and to ensure that employers have access to a highly skilled workforce to meet critical labor market needs.

The Pathways Initiative is comprised of four Industry Collaboratives which are inclusive groups of industry leaders and educational partners across the state focused on the four key industries of the state's economy: (1) Health Services, (2) Infrastructure and Energy, (3) Manufacturing and Supply Chain Management, and (4) Technology and Innovation. The Pathways Initiative is expanding economic mobility for students and adult learners and drive economic growth for the state's employers.

There are 10 Centers of Workforce Innovation led by Community Colleges in partnership with other education partners across the state to:

DEVELOP new curriculum and strengthen existing education and workforce training aligned with the needs of employers that spans the education continuum from high school, to community college (credit and non-credit), to 4-year colleges and universities, and promotes the movement of students along pathways.

SHARE curriculum widely with other education institutions across the state and provide professional development for faculty and instructors so they may deliver the pathways developed.

CREATE model agreements and partnerships to support pathways including dual enrollment programs between high schools and colleges, 1+1 partnerships between community colleges, and 2+2 and 3+1 agreements between community colleges and 4-year colleges and universities.

PRODUCE Prior Learning Assessment (PLA) solutions.

CENTERS FOR WORKFORCE INNOVATION

THE INFRASTRUCTURE & ENERGY SECTOR OF THE NJ PATHWAYS INITIATIVE FOCUSES ON TWO CAREER AREAS:

- RENEWABLE ENERGY
- CONSTRUCTION

EDUCATION AND TRAINING PARTNERS

- COMMUNITY COLLEGES
- 4-YR COLLEGES & UNIVERSITIES
- VOCATIONAL TECHNICAL & COMPREHENSIVE HIGH SCHOOLS
- PRIVATE CAREER SCHOOLS
- ADULT LITERACY TRAINING PROVIDERS
- COMMUNITY BASED TRAINING PROVIDERS

INDUSTRY ACTION TEAMS

- EMPLOYERS
- INDUSTRY ASSOCIATIONS
- LABOR UNIONS

Community College Partners

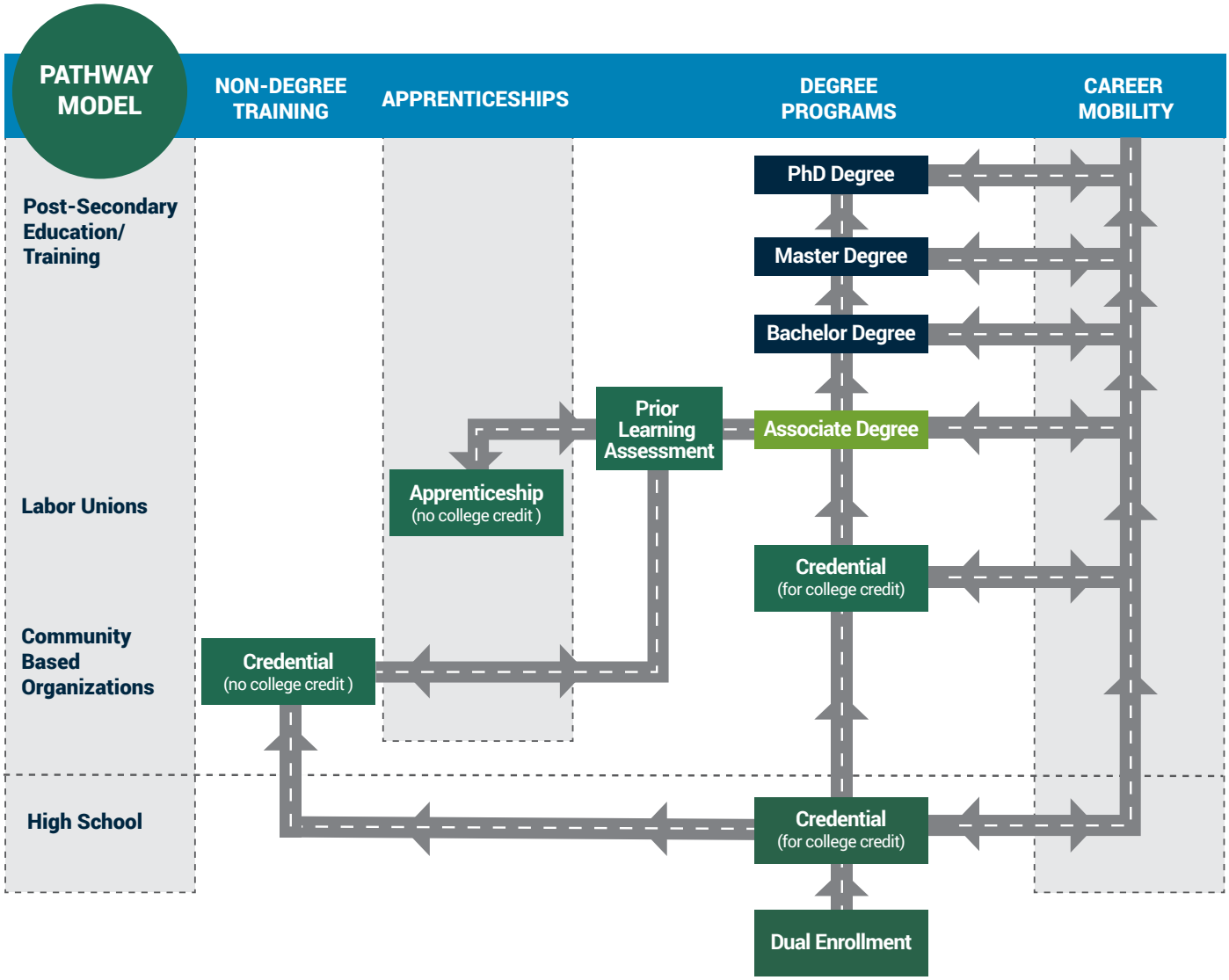
RENEWABLE ENERGY	CONSTRUCTION
• Atlantic Cape Community College • Bergen Community College • Middlesex College • Rowan College of South Jersey	• Hudson County Community College • Rowan College of South Jersey

What's in this Brochure?

This brochure details the exhaustive work of the cross-education sector partners of the Centers of Workforce Innovation (high schools, community colleges, four-year colleges and universities, labor unions, private career schools, community-based training providers, and others). The Centers are not buildings but instead are groups of cross-education sector partners working together to create and enhance academic and workforce development training programs so that every New Jersey residents' participation in these programs (no matter the education or training institution) results in (or leads closer to) the attainment of industry credentials and/or college degrees.

Rarely are individuals' education and training pathways linear or a straight line. There are stops and starts related to one's life journey. The 1,200+ industry and education partners of the NJ Pathways to Career Opportunities initiative keep that in mind to coordinate and create on- and off- ramps that allow for the continuous movement along a pathway to industry credentials and college degrees.

Most students and adult learners have education and training pathways that look like this:



The pathways that are developed and enhanced in the Centers of Workforce Innovation are connected and lead to industry credentials and college degrees no matter the starts and stops along the way. Those pathways include:

1. **High school to post-secondary pathways, including dual enrollment with pathways to post-secondary vocational programs**
2. **Transfer pathways from Community Colleges to 4-Year Colleges and Universities**
3. **Training programs offered by community-based organizations with pathways to post-secondary education and credentials**
4. **Contextualized adult basic education / literacy programs connected to pathways**
5. **Apprenticeship programs (with a focus on degree apprenticeships and work-based learning models)**
6. **Leverage state and federal financial aid, including the New Jersey Community College Opportunity Grant, for post-secondary credit programs**
7. **Prior Learning Assessments to accelerate credential and degree attainment for adults**
8. **Education and training to upskill incumbent workers in partnership with employers**

The cross-education sector partners working with community colleges include 20 high schools, 9 four-year colleges and universities, 8 labor unions, and 4 community-based training providers and others engaged in this transformational work within the Centers. The Centers have connected and enhanced 22 education and training pathways in the four fastest-growing industries in the state. The pathways work will soon be available to the education institutions statewide via an online repository at www.njpathways.org. This work includes:

- Model career awareness programs for high schools and community colleges
- Model dual enrollment programs for high schools
- Community college curriculum
- Model articulation agreements between community colleges
- Model articulation agreements with four-year colleges and universities
- Prior learning assessment solutions for non-credit to credit (including for apprenticeships), industry credential to credit, and work experience to credit
- Apprenticeship models
- Model experiential learning programs
- Contextualized adult literacy occupational programs
- Model workforce development training programs
- Pathway maps
- Professional development materials for each pathway

The contents of this brochure represent the hard work of 1,200+ industry and education partners in the first full year of the pathways initiative. We have laid the groundwork, connected and enhanced education and training pathways, engaged industry to directly influence pathways, and created education ecosystems collaborating together while focused on industry needs to benefit employers, employees, adult learners and students.

INFRASTRUCTURE AND ENERGY

CENTER OF WORKFORCE INNOVATION FOR RENEWABLE ENERGY
CENTER OF WORKFORCE INNOVATION FOR CONSTRUCTION

INDUSTRY HIGHLIGHTS

- **Projected to add 13,900 jobs through 2030**
- **$13.6 billion in total wages paid, or about 5.7% of all wages**
- **Over $31 billion to GDP in 2020, 5.7% percent of all output**
- **Added 5,200 new jobs since 1990**
- **Loss of 21,800 jobs in Spring 2020 and has recovered 28,800 through May 2022**

Source: United States Bureau of Economic Analysis, GDP in Chained 2012 Dollars Quarterly Census of Employment and Wages, 2020 Annual Averages Current Employment Statistics

SALARY REPORT

EDUCATION	EMPLOYMENT	AVERAGE SALARY
Doctoral or professional degree	50	$201,200
Bachelor degree	22,650	$117,600
Associate degree	550	$83,700
Postsecondary non-degree award	8,640	$69,000
Some college, no degree	3,890	$54,100
High school diploma or equivalent	93,240	$76,100
No formal educational credential	29,730	$61,300

CENTER OF WORKFORCE INNOVATION FOR RENEWABLE ENERGY

New Jersey is committed to achieving 100% clean energy by 2050 and is poised to experience job growth in the renewable energy sector. Ranked third nationally in small-scale solar power systems electricity generation, New Jersey's commitment to clean energy includes the development of significant offshore wind energy capacity and the utilization of biomass facilities. Additionally, the Infrastructure Investment and Jobs Act will bring funding to New Jersey for electric vehicle initiatives. New Jersey is a leader in renewable energy policy, driving both workforce and economic development.

PATHWAY 1 – OFFSHORE WIND ENERGY

CONNECTION TO HIGH SCHOOL (NON-CREDIT)

Cape May County Technical School developed three model offshore wind energy science projects and career awareness programs. Through the Follow the Photon game, students examine the energy pathway for electricity generated via an offshore wind turbine and compare that energy pathway to electricity generated by a fossil fuel (coal) power plant.

Preparing for a Career in the Offshore Wind Industry is a 10-day project that teaches students about the unique experiences employees have working and living on an offshore wind farm, what training is required for offshore wind turbine workers, and the importance of safety in this industry.

Beach Town, USA: A Town Hall Debate is the third project in the series. Students take part in a mock town hall debate about a proposed offshore wind farm development in their community. They will examine evidence, perform research, and present arguments either for or against the offshore wind farm development from the point of view of various stakeholders.

CONNECTION TO HIGH SCHOOL (DUAL ENROLLMENT)

Principles of Renewable Energy is an introductory, general education dual enrollment course enabling both high school and Community College students the ability to learn about renewable energy. This 3-college credit course was developed by Middlesex College in conjunction with Middlesex Magnet Schools and includes topics on energy conversion, conservation, and the regulatory and economic aspects of alternative energy resources. The course covers scientific aspects of the "carbon cycle", fuel combustion, nuclear fission, heat transfer, and thermodynamics. The course has a laboratory component that will use the Scientific Method to explore aspects of energy conversion (mechanical to electrical conversion, radiant collection, photo voltaic conversion, wind, and mass flow to mechanical conversion, etc.) The course was developed for in-person instruction with the possibility for expansion to online delivery.

Middlesex College is piloting the Principles of Renewable Energy course in-person for 16 Community College students during the Spring 2023 semester.

CONNECTION TO COMMUNITY COLLEGE (NON-CREDIT)

Exploration in Wind Energy Careers is a non-credit, 3-hour workshop developed by Middlesex College which allows participants to explore different career options in wind energy. Wind energy careers focus on improving energy efficiency and reducing emissions. This self-paced, online workshop explores concepts in renewable energy, wind energy, wind energy careers, and wind energy training and education. The workshop also includes a guest speaker from the wind energy industry.

PRIOR LEARNING ASSESSMENT

The Global Wind Organization (GWO) Basic Safety Training (BST) with Sea Survival program is required training for all offshore wind occupations which take place at sea. Upon completion of the GWO BST, participants will possess an awareness of the hazards encountered when working within the wind industry and how to control and mitigate these hazards.

The GWO BST with Sea Survival training program was evaluated by Atlantic Cape Community College (ACCC) for 3 college credits stackable into ACCC's Associate of Applied Science in Technical Studies degree, as well as the Associate of Applied Science for Wind Turbine Technician degree under development at Rowan College of South Jersey that will articulate to a Bachelor degree under development at Rowan University.

EXPERIENTIAL LEARNING

Rowan College of South Jersey (RCSJ), in collaboration with industry partners, has developed the Wind Turbine Technician Pre-Apprenticeship Program which provides individuals with the foundational knowledge and skills needed for admission into the Wind Turbine Technician non-credit training program or apprenticeship. The 185-hour program is structured to include both classroom and online instruction with hands-on lab training. Along with gaining valuable industry knowledge, successful completers will obtain 3 industry valued credentials: (1) OSHA 10, (2) CPR/First Aid, and (3) Global Wind Organization Basic Technical Training (GWO BTT), while preparing for entry into an apprenticeship.

APPRENTICESHIP DEVELOPMENT

Rowan College of South Jersey (RCSJ), in collaboration with industry partners, has developed a Wind Turbine Technician Apprenticeship Program to meet employer needs in New Jersey's offshore wind industry. The development and implementation of the Wind Turbine Technician Apprenticeship Program will provide students the opportunity to earn and learn while working as an entry-level technician with an offshore wind company. This is the first proposed Wind Turbine Technician Apprenticeship Program in New Jersey. The apprenticeship is based on an existing USDOL registered apprenticeship which was modified to include relevance to the offshore wind industry in New Jersey.

This competency-based apprenticeship program combines 2,000 hours of on-the-job learning (OJL) with 615 hours of related technical instruction (RTI) provided by RCSJ. Three industry valued credentials will be earned: (1) OSHA 10, (2) First Aid/CPR/AED, and (3) Global Wind Organization Basic Safety Training with Sea Survival (GWO BST with Sea Survival).

PRIOR LEARNING ASSESSMENT FOR APPRENTICESHIP RELATED TECHNOLOGY INSTRUCTION (RTI)

Rowan College of South Jersey (RCSJ) has designed a stackable credential model to establish a career pathway for Wind Turbine Technicians working in the offshore wind industry. Through RCSJ's use of Prior Learning Assessment of the Wind Turbine Technician apprenticeship related technical instruction (RTI), successful completers of the Wind Turbine Technician apprenticeship program at RCSJ will be awarded 15 college credits stackable into the Wind Turbine Technician Academic Certificate and/or the Associate of Applied Science for Wind Turbine Technician degree which is currently under development at RCSJ that will articulate to a Bachelor degree under development at Rowan University.

PROFESSIONAL DEVELOPMENT

Education partners created train-the-trainer resources to be shared widely with other education institutions statewide, and deliver professional development on this Offshore Wind Energy pathway.

Atlantic Cape Community College created train-the-trainer resource Strategies for Teaching Adult Learners program to assist educators to successfully reach adult learners who are a large workforce development target population within the offshore wind energy industry.

PATHWAY 2 – ELECTRIC VEHICLES

CONNECTION TO HIGH SCHOOL (NON-CREDIT)

The Electric Vehicle (EV) Rover Lab curriculum was created by Bergen County Technical High School (Paramus) to give its students in a career and technical education (CTE) program or for a traditional high school to introduce the foundational concepts and systems in Electric Vehicles. This series of lessons is intended to expose students who have no prior knowledge of the basic principles and theories of electricity, motors, and other corresponding systems required to operate the simplest EV. The 4-part unit is designed to be taught over several weeks and can be developed to be more complex by including a deeper exploration of the physics content and adding the use of available equipment in school workshops such as micro-processors like Arduino, laser cutters, and 3D printers. These lessons present the core foundational knowledge and should be elaborated on by instructors as they deem appropriate.

The Electric Vehicle (EV) Go-Kart Design Challenge curriculum was created by Bergen Community College to give students in a Vocational-Technical high school or community college industrial design technology course exposure to EVs. Students work in small teams using design principals they learn within the "Engineering Design Loop" to design, build, test, and refine a full-scale EV Go-Kart using a broad set of specifications given to them by their instructor. Instructors can choose between a metal conduit / maker pipe-connect frame, or a 1-inch square tube welded frame based on each school's access to welding expertise and equipment. This course is intended to expose students who have already shown an interest in mechanical, electromechanical, mechatronics, or automotive service technology to show them that EVs are an especially exciting technology to focus on. The course is designed to be taught over one semester (half year) and may be a follow-up to the EV Rover lab project.

APPRENTICESHIP DEVELOPMENT

The Automotive Technician Apprenticeship Program (ATAP) was registered with the United States Department of Labor (USDOL) in 2019 by the New Jersey Coalition of Automotive Retailers (NJCAR) with the goal to train automotive technicians entering the field with basic automotive knowledge. In partnership with Bergen Community College and Bergen County Technical High School (Paramus), an Electric Vehicle Specialist Addendum has been added to the apprenticeship giving apprentices the option to venture into the world of electric vehicle repair. The addendum provides added concentration on EV safety, batteries, diagnostics, drive trains, and electronics through 1,500 hours of on-the-job training (OJT) combined with 75 hours of related technical instruction (RTI).

CONNECTION TO COMMUNITY COLLEGE (NON-CREDIT)

The Electric Vehicle-Automotive Technician/EV Specialist Training non-credit course provides urgently needed safety, technical, and ancillary training based on emerging skills gaps in the automotive technician workforce. Developed by Bergen Community College in conjunction with Bergen County Technical High School (Paramus), the course is designed to bridge the current workforce skills gap relating to new technological changes in power systems with electric batteries, diagnostic systems which have become increasingly electronic, the effects of temperature on various systems, changes in weight distribution including battery location affecting lifting processes, and more. The course is designed to upskill currently employed Automotive Technicians for their continued career growth and to expand this valuable career opportunity for those entering the workforce. The course consists of 75 contact hours delivered over 27 sessions, and prepares students for the Automotive Service Excellence (ASE), Light Duty Hybrid/Electric Vehicle Specialist Certification examination (L3).

Bergen Community College is overseeing two pilots of the Electric Vehicle-Automotive Technician training course, which is also the apprenticeship RTI.

The first pilot will be held at Raritan Valley Community College in August 2023 for 8 to 10 Community College or Vocational-Technical school students and incumbent automotive mechanics. Eligible students who successfully complete the course can then start their apprenticeship on-the-job training hours in September 2023.

A second pilot of the course for 8 to 10 Community College or Vocational-Technical school students and incumbent automotive mechanics will be held at Bergen County Technical Schools (Paramus) campus in the early Fall 2023. Eligible students who successfully complete the course can then start their apprenticeship on-the-job training hours upon completion of the course.

PRIOR LEARNING ASSESSMENT FOR APPRENTICESHIP RELATED TECHNICAL INSTRUCTION (RTI)

Thomas Edison State University is currently evaluating the Related Technical Instruction for the Automotive Technician Apprenticeship Program (ATAP) Electric Vehicle Specialist Addendum through the Prior Learning Assessment process. College credits equivalencies will be stackable into the Associate of Applied Science in Technical Studies degree or Associate of Applied Science in Automotive Technology degree.

PROFESSIONAL DEVELOPMENT
Education partners created train-the-trainer resources to be shared widely with other education institutions statewide, and deliver professional development on this Electric Vehicles pathway.

INDUSTRY RESEARCH
The Need for Electric Vehicle Service and Infrastructure Technicians in New Jersey research report by Bergen Community College summarizes the trends in vehicle electrification and need for workers as determined by stakeholders in the automotive industry, and suggests how the state can support educational institutions in developing this vital workforce.

Two roundtable listening forums were held with stakeholders from the automotive industry and educational institutions in the Fall 2022. From the discussions it became clear:

- There already is a demand for traditional automotive technicians, but the move to electric vehicles will make the need for technicians trained specifically to work on hybrid vehicles and EVs more acute in the coming years.
- Educational institutions can prepare students for this lucrative and secure trade by focusing on safety and basic electronic principles.
- Developing apprenticeships with dealerships is a strategy that could help both the educational institutions and dealerships.
- Government can play a vital role by educating the public on the changes being brought about by the electrification of the transportation sector, adopting common-sense safety standards for workers involved with hybrid vehicles and EVs, providing financial support for institutions and students interested in the trade, and assisting with the infrastructure changes needed by dealerships and the public with the growing use of electric vehicles.

CENTER OF WORKFORCE INNOVATION FOR CONSTRUCTION

New Jersey's construction industry, with more than 180,000 family sustaining paying jobs and careers, is critical to the state's economic future. Apprenticeships have long been the gold standard of career and technical education in construction, embracing the "earn while you learn" model. With technology changing the skill requirements of the construction industry, enhanced career pathways are needed to assist individuals to earn post-secondary degrees and credentials and to provide more high school students on-ramps to careers in this industry.

PATHWAY 1 – CONSTRUCTION MANAGEMENT

CONNECTION TO HIGH SCHOOL (DUAL ENROLLMENT)

Hudson County Community College (HCCC) created a relationship with two local high schools Dickinson High School (DHS) and Kearny High School (KHS)) and focused on the alignment of construction courses offered at each high school with the Construction Management program at HCCC. This will allow students who have taken those courses at the high schools to transfer to HCCC and receive college credits towards the Associate of Applied Science in Construction Management degree. Students could also receive college credits towards Construction Management credit certificate programs at HCCC.

CONNECTION TO HIGH SCHOOL (DUAL ENROLLMENT)

A dual enrollment articulation agreement is being created between Hudson County School of Technology (HCST) and Hudson County Community College (HCCC) allowing students to simultaneously take classes at HCCC while taking classes at HCST. Students would graduate with both a high school diploma and an Associate of Applied Science in Construction Management degree.

CONNECTION TO COMMUNITY COLLEGE (CREDIT)

Hudson County Community College designed the Construction Management one-year certificate program to prepare students for early entry to careers in the construction industry. The program grants 34 college credits and includes general education courses and construction management courses that include technical skills, as well as supervision, planning, coordination, and budgeting of a construction project.

Successful completers of the program will learn to understand and manage all phases of modern-day construction. They will be exposed to new construction methods, protocols, materials, testing procedures, and management principles. Special emphasis is placed on preparing students to attain industry valued credentials including (1) Certified Construction Manager from the Construction Management Association of America, (2) Certified Professional Constructor from the American Institute of Constructors, and (3) Project Management Professional from the Project Management Institute.

The certificate program college credits stack into the Associate of Applied Science in Construction Management degree enabling students to transfer seamlessly to the Associate program.

PRIOR LEARNING ASSESSMENT

Hudson County Community College (HCCC) offers non-credit certificates in Construction Management which are four-months (one semester) and are designed to train students for a specific career in the construction industry. HCCC evaluated the following eight certificate courses for college credit equivalency: (1) Construction Project Planning and Control, (2) Construction Cost Estimation (Quantity Surveying), (3) Construction Materials and Testing, (4) Basic Engineering Calculations, (5) Engineering Structures, (6) Construction Project Management, (7) Construction Codes, and (8) Construction Surveying and Site Planning.

All non-credit certificate courses stack into the Construction Management program such that college credit is earned for both the one-year Construction Management Certificate as well as the Associate of Applied Science in Construction Management degree for their certificate course. This will reduce the time and cost for certificate or degree completion.

PRIOR LEARNING ASSESSMENT FOR APPRENTICESHIP RELATED TECHNICAL INSTRUCTION (RTI)

Prior learning assessment for apprenticeship related technical instruction is the first step in developing articulation agreements between Hudson County Community College (HCCC) and individual unions. Articulation agreements allow union apprentices to receive college credits upon applying to the HCCC Construction Management program. HCCC faculty is developing a rubric for

courses in the construction management curriculum to create a uniform procedure for union apprenticeship evaluation. The rubric will offer a way of comparing student learning objectives and skills and determining the level of similarity (or difference) between courses and apprenticeship RTI.

The Building Trades Union partners in the Center include (1) Eastern Atlantic States Regional Council of Carpenters, (2) Heat and Frost Insulators and Allied Workers Local 32, (3) International Brotherhood of Electrical Workers Local 102, (4) International Brotherhood of Electrical Workers Local 269, (5) International Union of Operating Engineers Local 825, (6) Ironworkers Local Union #399, (7) NJ Administrative District Council of Bricklayers and Allied Craftworkers, and (8) Sheet Metal Workers Local 25.

PRIOR LEARNING ASSESSMENT

Hudson County Community College National Institute for Certification in Engineering Technologies (NICET) Level I and Level II certification preparatory courses equip students with the understanding and skills needed to achieve the NICET Certification in the construction field. The preparatory courses will help students with their understanding of the safety, sustainability, and environmental aspects of today's modern construction industry. The courses bridge the existing gap between theoretical knowledge and field realities.

The learning outcomes of the NICET non-credit certificate courses (Level I and Level II) were assessed and evaluated by Hudson County Community College (HCCC) faculty for college credit equivalency. It was determined that the learning outcomes of the Level I and II NICET certificate courses do not meet the learning outcomes of any Construction Management courses or certificates, therefore NICET certificate courses cannot be awarded college credit in HCCC's Construction Management program.

The NICET certificate preparation courses will continue to be offered as stand-alone non-credit certificates as employers have indicated interest in having employees NICET certified.

CONNECTION BETWEEN COMMUNITY COLLEGES

A model 1+1 agreement between Hudson County Community College (HCCC) and other Community Colleges will allow those Community Colleges that do not have a construction management degree program to take advantage of the resources and equipment at HCCC. With the 1+1 agreement, students at other Community Colleges can take their general education courses at their home college and take the Construction Management major-specific courses at HCCC to earn the Associate of Applied Science in Construction Management degree at HCCC.

CONNECTION TO 4-YEAR COLLEGES AND UNIVERSITIES

Hudson County Community College (HCCC) established a 2+2 articulation agreement with Thomas Edison State University (TESU). Students who earn the Associate of Applied Science in Construction Management degree at HCCC can transfer to the Bachelor of Science in Construction degree program at TESU.

Additionally, HCCC updated a 2+2 articulation agreement with Fairleigh Dickinson University (FDU), including addendums and revised course matches, and are awaiting final approvals from the respective Colleges. Students who earn their Associate of Applied Science in Construction Management degree at HCCC will be able to also transfer to the Bachelor of Science in Construction Engineering Technology degree program at FDU.

PROFESSIONAL DEVELOPMENT

Hudson County Community College (HCCC) enhanced Construction Management curricula with diversity, equity, and inclusion (DEI) components and revised professional development workshops to teach instructors how to incorporate DEI concepts into their classes. DEI components that relate to Construction Management were identified and embedded into the program curricula, and student learning objectives were created to evaluate effectiveness.

HCCC faculty will explore the DEI components and how to effectively incorporate DEI into their classes at the faculty professional development workshops.

PATHWAY 2 – UTILITIES (CONSTRUCTIONS, MAINTENANCE, AND OPERATIONS)

CONNECTION TO COMMUNITY COLLEGE (CREDIT)

Rowan College of South Jersey (RCSJ) developed two academic certificate programs which provide students with a concentration of courses that parallel the Associate degree program.

The Surveying Engineering Technologies certificate gives students the knowledge and skills needed for employment in the field of surveying. Courses include: (1) Introduction to Surveying, (2) Evidence and Procedures of Boundary Locations, (3) Route and Construction Surveying, (4) CADD I (AutoCAD), (5) Introduction to Geographic Information Systems, and (6) CADD II (Advanced AutoCAD).

The Construction Supervision program courses include: (1) Introduction to Surveying, (2) CADD I (AutoCAD), (3) Codes, Contracts, Specifications, (4) Business Law or Cost Estimating, (5) Principles of Management, and (6) Technical and Scientific Writing or Oral Communications.

Both certificate programs award 18 college credits stackable into the Associate of Applied Science in Technical Studies degree.

PRIOR LEARNING ASSESSMENT FOR APPRENTICESHIP RELATED TECHNICAL INSTRUCTION (RTI)

The Prior Learning Assessment (PLA) process recognizes the college level knowledge and skills obtained through non-traditional academic experiences, including apprenticeships. Rowan College of South Jersey (RCSJ) and eight Building Trades Unions partnered to evaluate apprenticeship programs for college credit. The Union partners in the Center include 1) Eastern Atlantic States Regional Council of Carpenters, (2) Heat and Frost Insulators and Allied Workers Local 32, (3) International Brotherhood of Electrical Workers Local 102, (4) International Brotherhood of Electrical Workers Local 269, (5) International Union of Operating Engineers Local 825, (6) Ironworkers Local Union #399, (7) NJ Administrative District Council of Bricklayers and Allied Craftworkers, and (8) Sheet Metal Workers Local 25.

Each apprenticeship program was evaluated and granted 24 technical elective college credits toward the Associate of Applied Science in Technical Studies degree at Rowan College of South Jersey.

CONNECTION TO 4-YEAR COLLEGES AND UNIVERSITIES

Rowan College of South Jersey (RCSJ) has collaborated with Rowan University to establish a Memorandum of Understanding for the Bachelor of Art in Construction Management degree. Students who earn an Associate of Applied Science in Technical Studies degree at RCSJ will benefit from the maximum transferability of their Community College credits into the Bachelor of Art in Construction Management degree program at Rowan University. This model 2+2 agreement can be replicated with other Community Colleges throughout New Jersey.

ADULT LEARNERS

Rowan College of South Jersey (RCSJ) collaborated with the Gloucester County Institute of Technology (GCIT) and the Cumberland County Technical Education Center (CCTEC) to evaluate and align non-credit construction courses offered in their adult school programs for college credit. This will allow adult learners to continue on a pathway to further their postsecondary education enabling them to earn a college degree.

GCIT's NJ Fire Inspector Certification, Fire Official Certification, Welding Technician 1, and Welding Technician II programs have been evaluated and granted 2 technical college credits. CCTEC's Welding I program has also been evaluated and granted 2 technical college credits. Students who successfully complete these adult school courses will be eligible for college credits stackable into the Associate of Applied Science in Technical Studies degree at RCSJ.

ADULT LITERACY

Rowan College of South Jersey (RCSJ) developed two non-credit utilities principles courses for adult literacy learners: (1) Introduction to Construction Trades and (2) Foundations of Math for Water and Wastewater.

Introduction to Construction Trades provides adult literacy learners the opportunity to develop the foundational skills necessary for entry level positions in the construction field, as well as for pursuing post-secondary education. With a focus on safety, adult literacy learners will practice proper safety protocols when using tools and operating equipment, and build an understanding of Occupational Safety and Health Administration (OSHA) rules and regulations. Customer service, interpersonal skills, and effective communication are also featured.

Foundations of Math for Water and Wastewater is designed to prepare adult literacy learners to enter a Water and Wastewater pre-apprenticeship program. Consisting of classroom and online instruction with hands-on lab training, the program covers Careers in Water and Wastewater, Foundations of Water, Math Basics for Water Treatment, Computer Literacy, and Workplace Readiness Skills.

ADULT LEARNERS

Rowan College of South Jersey (RCSJ) in collaboration with the Gloucester County Institute of Technology (GCIT) and the Cumberland County Technical Education Center (CCTEC) developed course guides in Foundations of Carpentry, Foundations of Electrical Trades, and Foundations of Welding Technologies. These programs provide low-skilled adults with career pathway courses that incorporate 21st century skills into a traditional High School Equivalency preparation program or Integrated Education and Training to help them quickly develop the foundational skills they need to succeed in a construction pre-apprenticeship or training program.

The programs are designed to serve as an Integrated Education and Training program for New Jersey WIOA Title II Adult Basic Skills and Integrated English Literacy and Civic Education grant program. New Jersey WIOA Title II program providers can partner with their local Vocational-Technical schools who offer adult programs to implement these newly developed programs. These contextualized programs enable English Language Learners to obtain technical skills and foundational knowledge while improving their English Language skills.

PROFESSIONAL DEVELOPMENT

Rowan College of South Jersey (RCSJ) developed a turnkey Train-the-Trainer Program to create a pipeline of career and technical education (CTE) instructors, as well as create new career opportunities for construction workers. This program was created for first time classroom instructors and individuals who are transitioning into a new role as an instructor with little to no training or previous classroom experience. Designed to prepare experienced construction professionals, it upskills the current workforce and creates opportunities for them to learn the skills needed to teach non-credit programs within New Jersey's Community College network.

The Train-the-Trainer program covers topics such as Effective Communication, Presentation Skills, Understanding Adult Learners, and Course Planning and Preparation. The program can be delivered virtually or in-person as a non-credit program.

The NJ Pathways initiative provides information on how students and adults may enter an industry that most people don't think about. The approach of exposing students at the high school level to the construction industry, then transitioning to the Community College level where they participate in experiential learning opportunities is incredibly impactful for both the student and the employer. The adult education programs are critical to fill positions with nontraditional candidates because so many currently in the field are getting ready to retire. This initiative provides the industry with multiple sources of new talent.

Jason Cardenosa
Director of Talent & Employee Services
J. Fletcher Creamer & Son, Inc.

NJ PATHWAYS
TO CAREER OPPORTUNITIES

We hope our brochure on the New Jersey Pathways to Career Opportunities' Centers of Workforce Innovation gave you insights and appreciation for the game-changing work we are doing to align education with industry in the Garden State! It is exactly what is necessary to propel New Jersey's economy post-pandemic and beyond.

New Jersey Pathways embraces high-quality and timely labor market information about the changing needs of employers and builds an ecosystem of education and training partners to encourage collaboration and information sharing. We are confident this coordination and expansion of partnerships between critical stakeholders - in such a comprehensive fashion - will make unprecedented strides in advancing careers and filling critical employment needs.

This dynamic, cutting-edge initiative would not be possible without the vast industry and educational connections that have been built over several decades by New Jersey's Community Colleges and the New Jersey Business & Industry Association (NJBIA).

Community Colleges are one of New Jersey's greatest success stories. Created in the 1960s, New Jersey's 18 Community Colleges now enroll more than 300,000 people each year in credit, non-credit, and workforce development courses at more than 70 campuses throughout the state.

NJBIA has been focused on the advancement of competitive excellence for more than 110 years. NJBIA is the voice of thousands of businesses bound together for support, advocacy, and networking.

Together, New Jersey Community Colleges and NJBIA are a catalyst for progress and change sharpening our state's workforce. The synergy we have established with thousands of partners around the state is nothing shy of transformational.

We look forward to embracing you into this partnership.

AARON R. FICHTNER, PH.D.
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GET INVOLVED

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