

Community Colleges: **ADDRESSING THE SKILLS GAP**



AMERICAN
ASSOCIATION OF
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COLLEGES

Community Colleges: Addressing the Skills Gap

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Community Colleges: Addressing the Skills Gap

However it is best described -- skills gap, skills mismatch or some other term – the current labor market clearly exhibits an unprecedented and growing need for postsecondary workforce development. By the start of the next decade, sixty-five percent of American jobs will require some postsecondary education or training. Nearly half of those positions will require less than a baccalaureate degree and represent the fastest growing of all the job categories.

The Department of Labor reported that, in July 2017, there were a record 6.2 million unfilled jobs. While not all of them require postsecondary education, economists generally agree that one of the principal reasons for the growing number of vacant jobs is employers' inability to find adequately trained workers. Employers large and small routinely lament that they cannot find enough qualified workers.

Community colleges play an essential role in tackling this challenge. They are the first choice for millions of workers seeking to upgrade their skills, and for businesses looking for qualified applicants. Community colleges are geographically dispersed (the more than 1,100 institutions enroll 41% of all undergraduates), offer low tuition (average tuition and fees for a full-time student are \$3,520), and are considered the most responsive sector of higher education in meeting the needs of the private sector. They are open-access institutions that take students as they come--from fully college-ready to those lacking basic educational skills. Simultaneously, one of the fastest growing segments of community college students are those that already have a postsecondary credential, frequently bachelor's degrees.

A Brief Overview of Community College Workforce Development Programs

Community colleges have evolved from their early days as junior colleges that primarily provided the first two years of a four-year degree program. Now they are comprehensive institutions that offer a wide array of courses, programs, and other services for people in all their career phases, as reflected by the average student age of 28. Though in the truest sense we recognize that all higher education constitutes workforce education – studies repeatedly confirm that students primarily, if not exclusively, attend college for economic reasons – community college workforce programs are geared towards helping students improve their employment status in the near- to medium-term, while providing longer-term career pathways.

Community college workforce programs are extraordinarily varied and constantly evolving. College offerings include traditional credit programs that award certificates and degrees ranging in length from a semester or less to two years or more. In the 2014-15 academic year, community colleges awarded 807,000 degrees and 517,000 certificates. About 47 percent of the degrees were awarded in career and technical education (CTE) fields, while the vast majority of certificates (88%) were in CTE fields. Millions of students are enrolled in non-credit training, which runs the gamut from one-day courses to full-fledged programs that resemble traditional for-credit programs. These programs often allow students to prepare for third-party credentials such as industry certifications, state licenses, and apprenticeship certificates. Historically, credit and non-credit community college programming is administered by different institutional offices, but there is a growing effort to bridge that gap and create pathways into credit-bearing programs for students starting in noncredit training programs.

Blended non-credit/credit programs are just one example of an increasing emphasis among community

colleges at helping students progress more easily to employment and/or further education. Other continuing innovations include:

- stackable credentials, which allow students to earn multiple, industry-valued credentials while progressing towards a degree;
- guided pathways and career pathways, which help students navigate more efficiently towards their educational goals;
- co-requisite education, where students receive occupational and developmental education simultaneously, rather than in a sequence; and
- competency-based education and prior learning assessment, allowing students to progress at their own pace based on what they have mastered.

Partnerships with business are fundamental to the success of many community college workforce development programs. Local businesses sit on community college program advisory boards, ensuring that program design provides workers with the needed education and skills. Businesses often tender monetary support, equipment donations, and sometimes lend their employees to teach. Colleges design and deliver customized training programs for incumbent employees, often right at their worksites. Community college programs offer students opportunities for internships and other forms of workplace-based learning. They are also heavily involved in all phases of apprenticeships – from providing related classroom instruction to sponsoring apprenticeship programs themselves.

In order to establish and nurture a continuum of talent development, community colleges also work closely with K-12 schools and four-year universities. Further, state and local economic development are entwined with community college workforce education efforts to help create the jobs of the future, in addition to filling existing ones. Some of these efforts are realized through business incubators located on community college campuses, where fledging businesses are able to take advantage of college expertise and infrastructure support.

Many community college officials highly value their partnership with the workforce development system authorized by the Workforce Innovation and Opportunity Act (WIOA). College presidents and other institutional leaders sit on local and state workforce development boards. One-stop career centers are sometimes located on college campuses, and, where they are not, college employees often work at the centers. College programs are included on the eligible training provider lists for WIOA participants, and in other cases, colleges contract directly with local boards to deliver WIOA training.

Federal Policy Issues and Key Programs

A variety of federal programs help improve the scope and quality of community colleges' workforce development programs. These programs are often criticized for being too numerous, or lacking a comprehensive approach, but each of them was established to address a particular need, and many of these needs remain. There is every likelihood that these particular needs would not be addressed without being targeted by these types of federal programs. Some of the more important aspects of these programs are described below.

Funding

Federal funding for workforce training programs has waned considerably with negative impacts to programs. Compared to many industrialized nations, America devotes a smaller percentage of the gross domestic product to educating its workforce.

For example, when inflation is taken into account, appropriations for the core WIOA programs declined 39% between FY 2001 and 2017. Not surprisingly, fewer individuals are now receiving WIOA training.

Perkins Career and Technical Act (Perkins Act) state grants support the improvement of high school and postsecondary CTE programs, and the Adult Education and Family Literacy Act programs educate adults with less than a high school education. There too, funding has been on the decline. Community colleges will continue to advocate for stronger support from the federal government in these areas.

There is currently no federal program that directly supports expanding community college training. This was previously effected through the Trade Adjustment Assistance Community College and Career Training (TAACCCT) program and, before that, the Community-Based Job Training Grants (CBJTG) that was championed by former President George W. Bush. Both of these programs were invaluable to community college efforts to train more people in ever-more innovative ways, with strong accountability features. Community colleges continue to urge Congress to enact a program drawn along these lines to build on this progress.

Fixing Problematic Accountability Measures: The Higher Education Act (HEA) and Perkins Act contain metrics largely focused on completion. The widely adopted state performance-based funding frameworks also emphasize completion. However, while completion is a fundamental goal that remains an ongoing priority, the reality is that many community college students achieve their educational goals without receiving an academic credential. Often, students only need to take one or a few classes to get a promotion or otherwise progress in their careers. There are growing efforts to quantify these so-called “skill builders” in California and elsewhere. In the meantime, federal accountability metrics need to be refined to reflect these successes. AACC continues to believe that the federal government should create a unit record data system linked to Department of Treasury wage data that enables students and the broader public to know more about the benefits of completing a particular postsecondary program—for all postsecondary education programs.

Better-Calibrated Student Support: The bulk of federal support for undergraduate higher education comes through the HEA’s Title IV programs. Other important sources of support are veterans’ benefits and the tax code’s American Opportunity Tax Credit (AOTC) and Lifetime Learning Credit.

Although not labeled as such, the largest federal workforce education program is the Pell Grant Program. Thirty-eight percent, some 2.4 million, of all community college students receive Pell Grants. Many are enrolled in workforce programs. However, the program is still partially tilted towards traditional college students, and it should be changed to better assist working students focused on career development. In particular, financially needy students in highly effective short-term programs should be eligible for Pell Grants. Currently, programs shorter than two-thirds of a year do not qualify. Also, more community college students need to be better informed about the array of student aid benefits and able to more easily access them.

The tax code is a substantial source of support for postsecondary students. The AOTC provides up to \$2,500 a year for eligible students. However, it should be modified to ensure that community college students receiving Pell Grants can qualify for the credit. In addition, the Lifetime Learning Credit should be modified so that community college students receive more assistance. Currently, students must spend \$10,000 on tuition and fees to maximize the credit, so graduate and professional students attending more expensive institutions receive the full \$2,000 credit while workers looking to enhance their skills at community colleges receive relatively little—just 20% of any tuition that they pay. For many workforce programs, this is a small amount.

Increased Program Alignment: Changes made in the WIOA reauthorization provided much-needed program alignment, particularly by uniformly applying accountability measures, which are more geared towards worker attainment of postsecondary credentials. House-passed legislation to reauthorize the Perkins Act, the Strengthening Career and Technical Education for the 21st Century Act (H.R. 2353), would make further progress towards alignment of Perkins and WIOA, including very similar accountability measures. Draft Senate legislation circulated last year took a similar approach, but has not been formally introduced. It would be highly desirable for the Perkins statute to be crafted in relation to the WIOA accountability measures.

Other Important Programs

In addition, the following programs are also important sources of support for community college workforce development:

Advanced Technological Education (ATE): The ATE program is the principal community college-focused program at the National Science Foundation. It funds national and regional centers and college level programs aimed at growing the sub-baccalaureate STEM workforce. Over its 25-year existence, the program has expanded steadily and is a beacon of community college program improvement, demonstrating the positive impact of thoughtfully conceived federal support.

Supplemental Nutrition Assistance Program Employment and Training: This program, administered by the Food and Nutrition Services division of the Department of Agriculture, allows states to provide employment and training services to SNAP (formerly known as food stamps) recipients. It has been used successfully to provide needed resources for students looking to improve skills in workforce training programs.

DOL Apprenticeship Grants and Registered Apprenticeship College Consortium (RACC): The DOL's apprenticeship grants have greatly broadened the reach of apprenticeship programs. Administered by DOL's Office of Apprenticeship, the RACC facilitates the conversion of the skills gained in apprenticeships into college credit, making it easier for apprentices to pursue further education. AACC supports this and any related efforts to expand apprenticeships, both in number and focus, particularly in "new collar" fields open to populations not traditionally engaged in apprenticeship programs.

Community College Program Profiles

The community college workforce development programs described in the following pages are emblematic of thousands of similarly successful programs at the nation's community colleges. They are located at urban and rural colleges alike, and serve varied student populations. These programs provide concrete examples of the different kinds of success that can be achieved when community colleges, industry partners, local communities, and the federal government work to strengthen programs and services aimed at ensuring Americans are prepared for quality jobs.



Alamo Colleges District

San Antonio, TX | Alamo Academies

Program Description: The Alamo Colleges, comprised of 5 community colleges in the San Antonio area, is a lead partner in the Alamo Academies, along with business, local high schools, and municipalities. The Academies provide high school juniors and seniors with tuition-free career pathways into critical demand technical STEM occupations. The Academies supply the region with high-tech, high-skilled talent by developing a pipeline of college educated technicians to staff new jobs and replace a retiring workforce in targeted industry clusters. 86% of the students are economically disadvantaged and 70% are Hispanic. The academies enroll 400 students each year.

Students attain industry and academic certificates leading to high-wage jobs or further higher education while addressing critical workforce industry needs. The program focuses on five occupational areas: aerospace, advanced manufacturing, information technology and security, nursing, and heavy equipment. Students are transported to an Alamo Colleges campus daily where they engage in 2 ½ hours of contextual learning. During the two-year program of studies, students earn more than 30 college credits with courses articulating to an Associate of Applied Science (AAS) degree at no personal cost. Upon graduation, students can either enter a high-wage career in a demand occupation or continue their higher education pathway. As part of the program of studies, students participate in a paid internship during the summer between their junior and senior year, applying the knowledge and skills learned while earning approximately \$3,000 and college credit. Each partner provides unique contributions: employers mentor, provide valuable work experience and pay their intern's salaries; Alamo Colleges provide facilities, equipment and instruction; school districts provide textbooks and round trip transportation; and municipalities fund operating costs. Industry partners include Toyota, Valero, Martin Marietta, University Health System and several others.

Outcomes: To date, more than 1,400 students have graduated from the Alamo Academies, earning 3,132 industry certificates. 95% of program graduates attain employment or pursue higher education.

Impact of Federal Programs: When the Academies board receives a request from an industry cluster to implement a new Academy or modify existing Academy curricula, the local workforce board is a key partner in identifying and verifying workforce needs and requirements. The colleges use Perkins Act funds to purchase equipment that is utilized by the Alamo Academies programs.

Arkansas State University – Newport

Newport, AR | Commercial Truck Driving

Program Description: Professional truck drivers are always in high demand, and ASUN offers a program of study designed to prepare students for a rewarding career in commercial truck driving. Arkansas is a nationwide logistics hub, with expanding opportunities for professional drivers. The program is truly a public-private partnership. The Newport Economic Development Council (NEDC) bought housing in Newport to support the partnership with Maverick, the lead industry partner. Maverick pays NEDC rent for the housing of their students while they're enrolled in the program. Students earn a Certificate of Proficiency and a Class A Commercial Driver's License upon successful completion of the program. Program completers have been hired by employers like MC Express, Maverick, Walmart, Werner, PAM, ABF, JB Hunt and many regional transportation companies. Starting pay for these positions is over \$50,000 per year with benefits. Over 95% of the program's students are sponsored by an employer that guarantees employment upon successful completion of the program.

Outcomes: The program awarded 184 certificates in the 2016-17 academic year. 95% of program enrollees complete the program.

Impact of Federal Programs: The program is too short in length to be Pell Grant eligible, and therefore is an example of the type of program that would benefit from expanded Pell Grant eligibility to short-term programs serving a demonstrated industry need.

Cuyahoga Community College

Cleveland, OH | Power Systems Institute

Program Description: The Cleveland Electric Illuminating Company (CEI), a subsidiary of FirstEnergy Corp., is partnering with Cuyahoga Community College (Tri-C) to reinstate its award-winning program to train the next generation of utility line and substation workers. Successful graduates of the Electrical Utility program earn an Associate of Technical Studies degree in Electrical Utility Technology and are prepared to seek employment in the electric utility industry.

The curriculum is part of FirstEnergy's award-winning Power Systems Institute (PSI), a two-year program that combines hands-on training with classroom instruction which will be conducted at Tri-C. Students who successfully complete the program will earn an Associate of Technical Studies degree in Electrical Utility Technology. The program includes technical course work in electrical fundamentals and circuit analysis, along with practical skills training and general education classes. Following the second semester, qualified students will complete a compensated 10-week (40 hours/week) evaluated field experience. Students must successfully complete FirstEnergy's pre-employment screening prior to participating in the field experience.

Outcomes: The first cohort of 22 students (100% graduation rate) has completed the program. The second cohort consisted of 28 individuals with 23 completing the first year of the program. The third cohort started this fall with 22 individuals. All 22 individuals in the first cohort were hired by FirstEnergy.

Impact of Federal Programs: The program is eligible for federal financial aid, however FirstEnergy covered all program costs for participating students.

Forsyth Technical Community College

Winston-Salem, NC | Community College Consortium for Biosciences Credentials

Program Description: The Community College Consortium for Biosciences Credentials (c3bc) has 12 member colleges located in eight states, with Forsyth Tech serving as the lead college. The bioscience industry is in high demand. To help it recruit, place, and build careers for entry level technicians, the goal of c3bc is to focus on specific hubs of the industry – medical devices, biomanufacturing and biosciences lab skills, and learning technologies – to establish industry skill standards, credential programs, and innovative delivery methods toward the education and training of students as well as displaced workers, and veterans. Twelve community colleges from 8 states participated in the four hubs. Industry partners include Cook Group, Boston Scientific and Pfizer.

The consortium employs complementary strategies to help dislocated workers quickly retrain for jobs in the industry and expand the capacity of community colleges to serve them. These include expanding and improving recruitment and assessment of trade-impacted workers for jobs in the industry, creating career pathways for these workers with embedded stackable and latticed industry-recognized credentials, and using methods such as prior learning assessment and technological instruction to speed workers along to credentials.

Outcomes: During the four-year grant, more than 3,000 students and 170 colleges, employers, bioscience industry groups and workforce organizations have been involved in c3bc. Four new associate degree programs were created as well as 19 new certificate programs. In addition, six new science laboratories were created or expanded and 370 program elements were created and stored on the free and open online Skills Common library.

Impact of Federal Programs: C3bc was established in 2012 by a TAACCCT grant of \$15 million. In addition, the program partners work closely with their local workforce development boards to identify and recruit trade-dislocated workers.

Gateway Technical College

Kenosha, WI | RPM Center for Advanced Manufacturing

Program Description: In 2014 Gateway Technical College and Precision Plus Manufacturing, located in Elkhorn, WI, established a new commitment and vision for advanced manufacturing. This vision transformed the college culture around quality and industry driven curriculum. With the lack of skilled workers in the region, Precision Plus CEO Mike Reader has said, “Upskilling the American workforce is at the core of our nation’s economic prosperity.” A new facility that includes engineering, computer numerical control and advanced precision machining is at the core of the training provided by Gateway. “Strengthening the core competence of students enrolled in the machining and manufacturing programs is at the center of this relationship”, said Dr. Bryan Albrecht, President of Gateway Technical College. The RPM facility has allowed Gateway to be competitive in investing in new equipment and expanding certification credentialing in areas of manufacturing including: Manufacturing Skill Standards (MSSC), occupational safety (OSHA), Lean Six Sigma, Starrett Precision Measurement, Snap-on Meter certification, Dremel 3D Printing Certification, AWS, and Solid Works Computer Aided Design Certification. Industry partners in addition to Precision Plus include Snap-on Tools, Dremel, Starrett, Zeiss, Haas Machining, Miller Welding, and several others.

Outcomes: Follow-up surveys indicate that 98% of Gateway students are satisfied with the training they received and that 91% of graduates have jobs within the region, with 73% of those employed in their specific field of study.

Impact of Federal Programs: The program has received support from the Perkins Act, TAACCCT, and WIOA programs.

Kentucky Community and Technical College System (KCTCS)

Versailles, KY | Automotive Manufacturing Technical Education Collaborative (AMTEC)

Program Description: KCTCS serves as the lead institution coordinating the AMTEC National Center of Excellence in Advanced Automotive Manufacturing.

AMTEC is a national leader in industry-driven quality mechatronics education. Mechatronics is a multidisciplinary field of engineering that combines mechanical, electronic, computer, software, control and systems design engineering in order to design and manufacture useful products. An industrial robot is a prime example of a mechatronics system. The AMTEC partners work with the automotive industry to develop effective training programs that can be used across manufacturing in industrial maintenance applications. The AMTEC curricula is designed to accelerate and contextualize learning for multi-skilled mechatronics technicians and maintenance workers in order to increase the number of students who earn college certifications. The curricula is largely based on modularized competency blocks that can be utilized as online, blended, or stand-alone modules.

AMTEC is a collaboration of dozens of community colleges in numerous states, automotive equipment manufacturers, and advanced manufacturers working to strengthen the automotive manufacturing industry by educating skilled technicians. These technicians are skilled at advanced troubleshooting of integrated systems in the manufacturing environment. Programmable logic controllers, robotics, hydraulic-pneumatics systems, electrical and mechanical systems, blueprint and schematics, machining, and welding are some of the many skill areas offered.

Through the development of industry-endorsed and scientifically validated skill standards, as well as innovative competency-based modularized curriculum and assessments, AMTEC colleges and industry partners are graduating highly-skilled individuals. Numerous industry partners include most of the major car companies, Amazon, Boeing, Goodyear and dozens of others.

College partners have been able to upgrade their existing mechatronics/industrial maintenance technician degree paths, create new degrees at community colleges, create dual credit opportunities in high schools, and utilize AMTEC standards to develop new baccalaureate programs.

Outcomes: AMTEC has provided a wide variety of program modules, assessments, simulators, and other products that are used to improve and streamline workforce training programs serving thousands of students. AMTEC's modules are so effective that Nissan North America in Tennessee has reduced its apprenticeship from six years to three years for substantial savings in training costs.

Impact of Federal Programs: AMTEC received planning and project grants, and finally funding to operate as an NSF Advanced Technological Education National Center of Excellence in Advanced Automotive Manufacturing. In addition, in 2012 a consortium of colleges received a \$15 million TAACCCT grant to, among other things, expand the reach of the competency-based modules developed by AMTEC.

Los Angeles Trade Technical College

Los Angeles, CA | Renewable Energy Programs

Program Description: The renewable energy programs at Los Angeles Trade Technical College (LATTC) prepare workers for entry-level up to apprentice level work within the energy efficiency area of the construction and maintenance fields. Students may earn certificates and associate of science degrees in several programs, each with its own emphasis. These include energy efficiency in construction, solar photovoltaic technicians, and a solar thermal emphasis. In all of the programs, students learn sustainable industry principles and practices and how to perform job-related calculations and measurements. Working independently and interdependently to safely accomplish shared professional outcomes is stressed. Skills gained from the program prepare a student for employment with contractors, individual facilities management companies, and other private or public agencies doing energy efficient building or performing energy upgrade retro-fitting on existing residential and commercial buildings. Skills gained from this program prepare a student for employment at the entry level in jobs such as Los Angeles Department of Water & Power “Electrical Utility Helper” classification, Southern California Edison’s “Utility Helper” position, City of Los Angeles “Electrical Craft Helper”.

Outcomes: In the 2014-15 academic year (the latest year for which data are available), more than 70% of program participants obtained employment.

Impact of Federal Programs: The program is supported by the Perkins Act. In addition, most students at LATTC are Pell Grant recipients.

Manchester Community College

Manchester, CT | Connecticut Advanced Manufacturing Initiative

Program Description: The Connecticut Advanced Manufacturing Initiative (CAMI), is a project that builds upon the success of the state’s nationally recognized Advanced Manufacturing Centers. The Centers serve diverse populations of students throughout Connecticut’s community colleges, which are part of the Connecticut State Colleges and Universities. Students prepare for careers in manufacturing with classroom instruction, computer and hands-on training in a lab environment. Under CAMI, those entering the workforce, and those presently employed and acquiring new skills, can take a variety of credit and non-credit certificate courses in advanced manufacturing. Students can earn two certificates in one year or a two-year associate degree. Internships at manufacturing companies are available for qualified students. The mission is to transition students from an educational environment into the manufacturing workforce. Seven Connecticut community colleges, five workforce development boards and hundreds of employers are involved in the partnership, including Pratt & Whitney, General Dynamics and Sikorsky. CAMI has developed or expanded the offering of certificates, degrees and industry certifications in fields such as mechatronics, welding, metrology, and additive manufacturing.

Outcomes: Between fall of 2015 and fall of 2017, the CAMI programs have enrolled more than 2,000 students, with the vast majority being retained and completing the programs. Further, 98% of the students who complete the two-semester certificate programs are employed in jobs with starting salaries of \$17 – 22 per hour.

Impact of Federal Programs: CAMI was funded by a \$15 million consortium TAACCCT grant. State and local workforce development boards are integral partners in the initiative. Through spring 2017, nearly \$700,000 of WIOA individual training accounts funding has gone to support program participants. All of the funded programs are Pell Grant eligible.

Metropolitan Community College

Kansas City, MO | Health Science Institute

Program Description: Metropolitan Community College (MCC) has a state-of-the-art Health Science Institute (HSI). This campus offers true-to-life simulation stations, hands-on learning opportunities, clinical skill practice, and care teamwork. Students can choose from certificate and degree programs in a wide range of nursing and allied health professions. The college offers healthcare professionals numerous continuing education options as well as customized training for employer partners. Healthcare organizations can contract with MCC for customized training and consulting services to address needs in human resources, process improvement, health information technology, health and safety management or clinical practice for their employees.

MCC's Virtual Hospital is an accredited healthcare simulation center that provides a cutting edge learning environment for healthcare providers and students. The Virtual Hospital is a realistic healthcare facility that hosts a variety of events and collaborates with businesses and organizations. It includes six simulation rooms that closely mimic hospital departments to provide a clinical environment for students and professionals to safely practice their skills. Each of the 6 simulation rooms are fully equipped and can be staged to resemble: acute care, emergency departments, pediatrics, labor and delivery, and more. In addition, the Virtual Hospital has classrooms and private debriefing rooms adjacent to each of the simulation rooms with large screens for live-streaming during the simulations to offer instant feedback. The Virtual Hospital uses high-tech human patient simulators including maternal and neonatal birthing simulators, pediatric simulators, and adult simulators.

Outcomes: MCC produces more nurses than any other institution in Kansas City. Completion and employment rates in the HSI programs are generally over 90%. The HSI is the area's largest provider of continuing education for healthcare professionals.

Impact of Federal Programs: MCC is a partner in a pilot program with SkillUP, the Missouri SNAP Employment and Training program. SNAP recipients enrolled in the HSI attend tuition-free and have other educational expenses covered. Students use Pell Grants to attend HSI's for-credit offerings. Perkins funds provide for professional development for HSI faculty.

Salt Lake Community College

Salt Lake City, UT | Utah Aerospace Pathways

Program Description: Utah's Career Pathways initiative is designed to strengthen the collaboration between industry, public and postsecondary education, and economic and workforce development stakeholders in direct response to the current and future talent demands of select industries. Industry-driven partnerships revise or develop new educational programs, supported by work-based learning opportunities that provide high school students and adult learners with industry certifications and work-ready skills.

The Utah Aerospace Pathways (UAP) partners Salt Lake Community College with industry partners such as Boeing, Hexcel, Janicki and others. Students complete 108 hours of classroom education and a 48-hour paid externship with one of the industry partners on their way to earning an aerospace manufacturing certificate. Certificate-holding students will have demonstrated knowledge and proficiency in basic manufacturing and will have completed classroom study in topics such as composite manufacturing, basic metrology and precision measuring instruments. Applied math and reading are also integral to the curriculum.

Outcomes: Nearly 200 adults and high school students have taken part in the UAP to date, and approximately 90% of them have completed the program, leading to employment for many with industry partners.

Impact of Federal Programs: Approximately 15% of the adults participating in the program are WIOA participants.

South Seattle Community College

Seattle, WA | Apprenticeship and Education Center (AEC)

Program Description: The AEC, located at the Georgetown Campus of South Seattle College, has programs in more than 20 different trades. Classes are offered on week days as well as evenings and Saturdays. The curriculum for each program is developed as a collaborative effort between the college and business, labor, and government through apprenticeship training committees, industry coalitions, and regulatory agencies. They are also involved in training advancements and product development.

Examples of apprenticeship programs at South Seattle include:

- A Joint International Association of Machinists/Boeing Apprenticeship program in 12 trades related to aircraft manufacturing and equipment maintenance.
- A Boiler Makers Apprenticeship program sponsored by the International Brotherhood of Boilermakers Local 104.
- A construction related apprenticeship program offering programs in carpentry, electrical trades, heavy equipment operations, HVAC, plumbing, and sheet metal work, among others, by the Construction Industry Training Council of Washington.

South Seattle College has joined with the Aerospace Joint Apprenticeship Committee to create the Manufacturing Academy, which is one of only 12 pre-apprenticeship programs that is officially recognized by the State of Washington Labor and Industry.

Outcomes: The college trains more than 4,000 apprentices and journey-level workers annually.

Impact of Federal Programs: The apprenticeships are registered apprenticeship programs that follow the guidelines laid out in federal law. South Seattle is also a member of DOL's Registered Apprenticeship College Consortium. South Seattle College was awarded a \$4.8 million American Apprenticeship Grant to fund the Partnership for Advanced Technology Apprenticeships in Manufacturing and Marine Engineering project. It will serve at least 1,000 workers (300 from underrepresented populations) in the State of WA by creating three new and expanding on 12 existing apprenticeship programs in the Advanced Manufacturing and Maritime sectors.



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