



# ACCELERATING CTE EVALUATION CASE STUDY

West Kentucky Community & Technical College

## AT A GLANCE

This report summarizes the Accelerating CTE project at one of the participating colleges. It provides details on student outcomes and the college's lessons learned, and concludes with information on how the college will build from its project experience going forward. For outcomes across all four participating colleges, see the *Reflections on Accelerating CTE* final evaluation report.

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For many individuals from underserved backgrounds, educational pathways toward upward mobility are too often not accessible or even available. Students of color, those from low-income families, and first-generation college students continue to face barriers on the way to completing credentials. Therefore, it is more important than ever to develop high-quality postsecondary CTE programs that prepare learners for high-skill, high-wage, and high-demand careers needed in the new economy. Advancing innovative models capable of driving higher persistence, completion, and credential attainment rates was our goal, in partnership with five progressive community colleges. This study presents a set of promising findings and models for CTE programs across the country to consider and build upon.

Our team at JFF wishes to thank the talented staff members and students at the participating colleges. We also want to acknowledge the amazing team at ECMC Foundation for their support and for their belief that advancing effective postsecondary CTE pathways as a means of fostering economic mobility for all students is one of the nation's most important imperatives. This investment and study add more evidence that that goal is possible.



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# WKCTC Service Area Profile

This case study shares findings from the evaluation of the Accelerating CTE program at West Kentucky Community & Technical College (WKCTC).

The main campus of WKCTC is in Paducah, Kentucky, the county seat of McCracken County.<sup>1</sup> The college’s service area covers Ballard, Calloway, Carlisle, Fulton, Graves, Hickman, Livingston, Lyon, and Marshall counties. The college serves about 8,500 students annually, and the student body is about 83 percent white and 62 percent female, with an average student age of 26. About half (51 percent) attend full time, and 54 percent are eligible for Pell Grants.

	McCRACKEN COUNTY
Population	65,565
Median age	42.1
Under age 18	22.0%
Over age 65	18.6%
Racial/ethnic makeup	85.3% white 11.1% black 2.1 two or more races
Educational attainment: high school education or higher	88.3%
Median household income \$	\$42,894
Individuals below poverty level	17.1%
Unemployment rate, December 2018	4.8%
Industries with highest employment	1. Health care and social assistance 2. Retail trade 3. Accommodation and food service 4. Manufacturing

Source: American Community Survey 5-Year Estimate, 2013-2017; Bureau of Labor Statistics, Local Area Unemployment Statistics Map, December 2018.

## Key Evaluation Findings

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- Student persistence and completion rates at every stage were consistently higher when Accelerate You! was offered than in the baseline period for both applied technology and health care pathways.
- The health science technology meta-major in combination with Accelerate You! created a significant alternative degree pathway for students and improved acceptance rates into selective admissions degree programs. Where fewer than 1% of developmental-level students who applied for selective admissions were successful in the baseline period, 66% of Accelerate You! students who applied for selective admissions in the program period were accepted
- Recognizing the impact of the Accelerate You! model on student success, WKCTC expanded it to 12 programs by fall 2018, with an emphasis on supporting students in required math and English courses.

## The Accelerating CTE Model at WKCTC

For the Accelerating CTE project, WKCTC built on work that started with the AO-Kentucky program for adult education students.<sup>2</sup> The new program, known locally as Accelerate You!, aims to improve outcomes for students who test below college-ready levels in reading, math, and/or English, often referred to as developmental education students. In Accelerating CTE, WKCTC focused on

improving persistence and completion in career and technical education (CTE) pathways in health care and applied technologies by offering team teaching, supplemental instruction, and wrap-around support services for students who tested at developmental levels rather than placing them in developmental education courses.



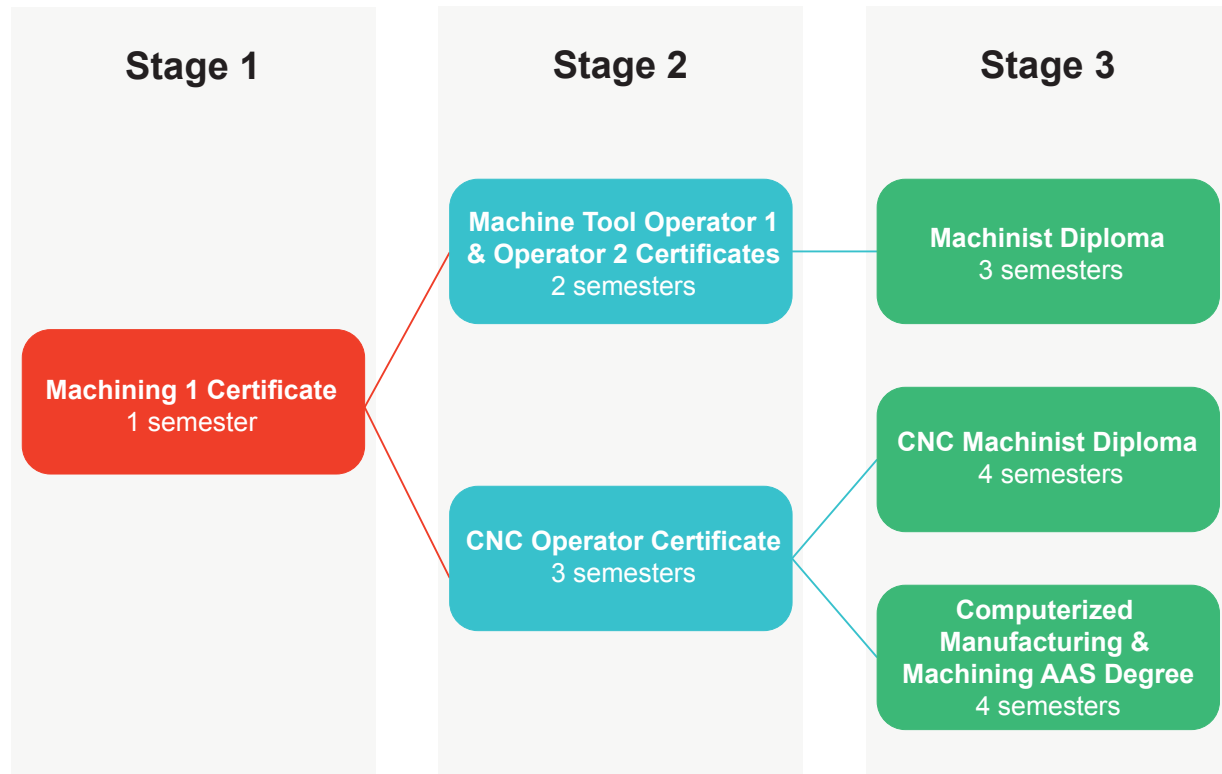
# Accelerating CTE Career Pathways and Student Outcomes at WKCTC

This section provides information on each career pathway offered at WKCTC and compares student progress and completion in these programs before and during Accelerating CTE.<sup>3</sup>

West Kentucky offered four career pathways as part of the Accelerating CTE program that are in high demand locally. Three of these pathways are in applied technologies: computerized manufacturing and machining, electrical technology, and industrial maintenance technology. Each of these programs offers stackable credentials leading to associate of applied science (AAS) degrees. The last pathway focused on the health science technology meta-major that provides an AAS degree pathway in health science technology as well as an AAS degree pathway in selective admissions programs such as nursing, surgical technology, radiography, dental assistant, physical therapy assistant, and medical lab technician. The college focused particularly on this pathway because too often developmental students struggled to gain admission to highly selective programs. The pathway graphics below show the stackable credentials that students can earn; note that the time estimates are based on full-time enrollment of 12 or more hours per semester.

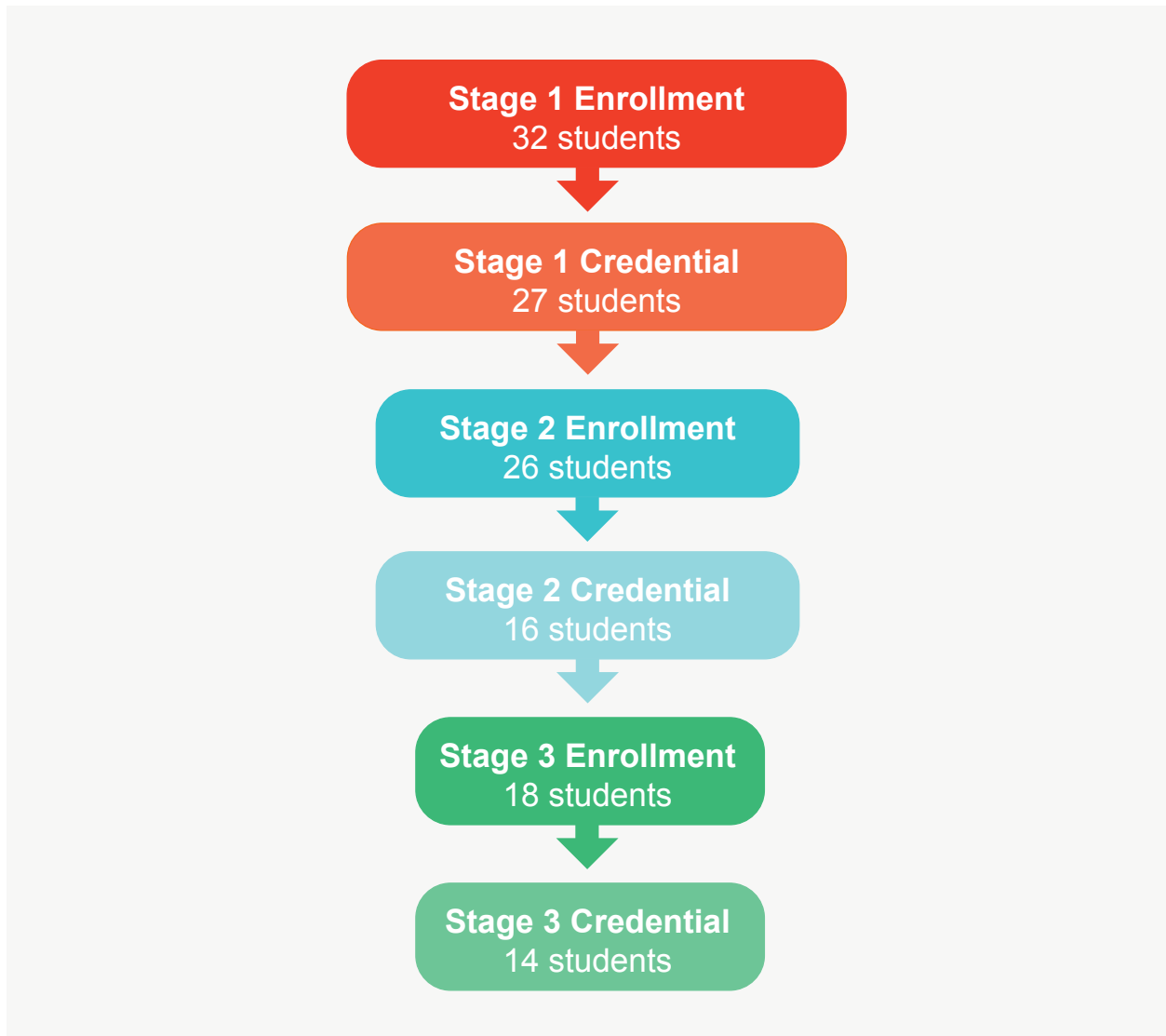


## Computerized Manufacturing & Machining Pathway and Student Outcomes



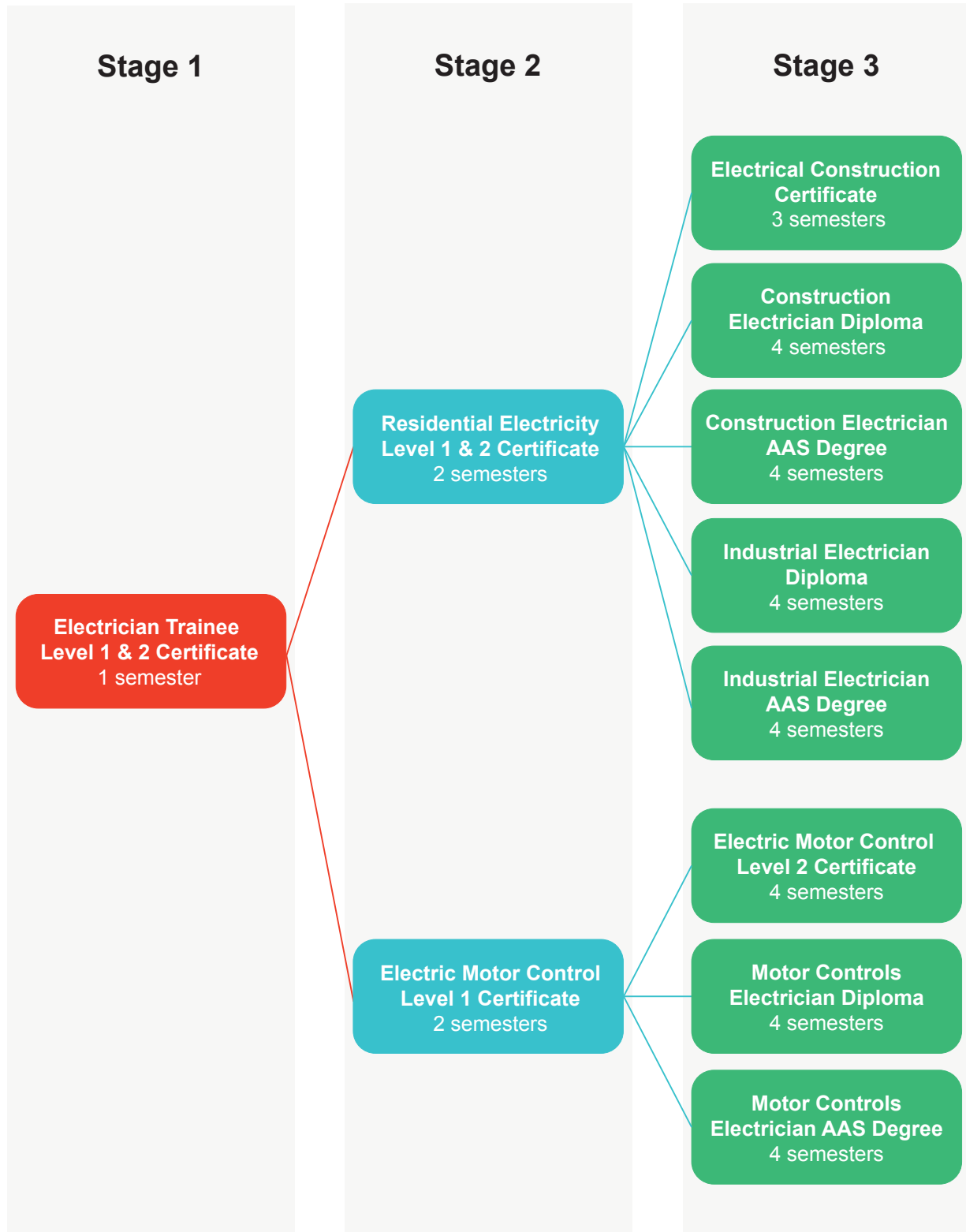
Computerized manufacturing and machining was part of WKCTC’s Accelerating CTE offerings from fall 2015 through spring 2018, with a total of 32 students enrolling in Stage 1 in fall 2015, spring 2016, and fall 2016. Most of those students persisted to Stage 2 (26 total or 81 percent). Of those who started in Stage 1, more than half (56 percent, or 18 total) persisted to Stage 3 within the time period of the project. Importantly, students also experienced success in each stage: 84 percent of students in Stage 1 completed and earned a Machining 1 certificate; 62 percent of students in Stage 2 completed and earned the Machine Tool Operator 1 and 2 certificates or the CNC Operator certificate; and 78 percent of students (14 total) in Stage 3 completed and earned a diploma or AAS degree.<sup>4</sup> The Accelerating CTE period performance represents a sharp improvement over the baseline period (fall 2014 through spring 2016) where 40 percent of students earned a Stage 1 credential, and just one student (10 percent) went on to earn a Stage 2 and Stage 3 credential.

## WKCTC Computerized Manufacturing & Machining Pipeline, 2015-18



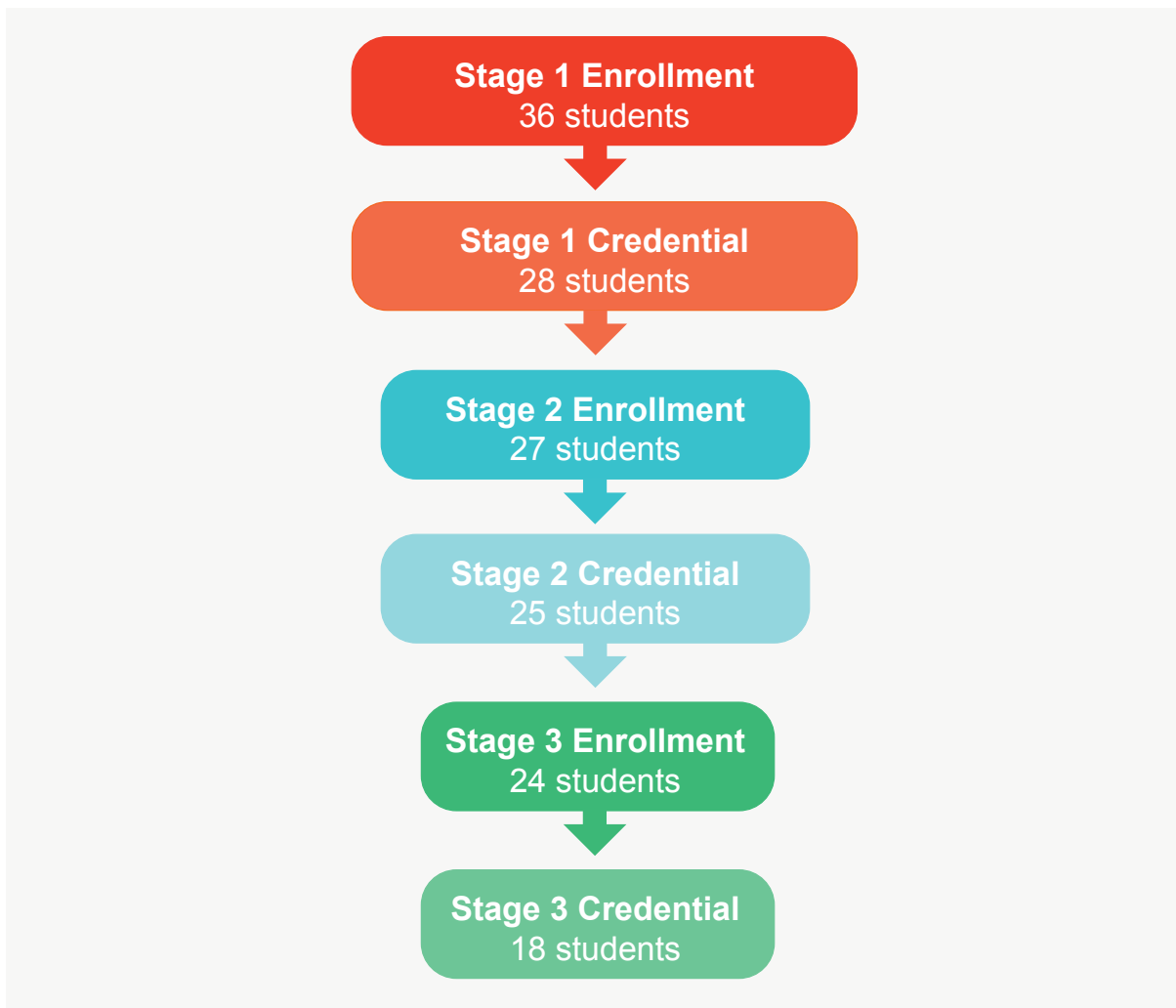


## Electrical Technology Pathway and Student Outcomes

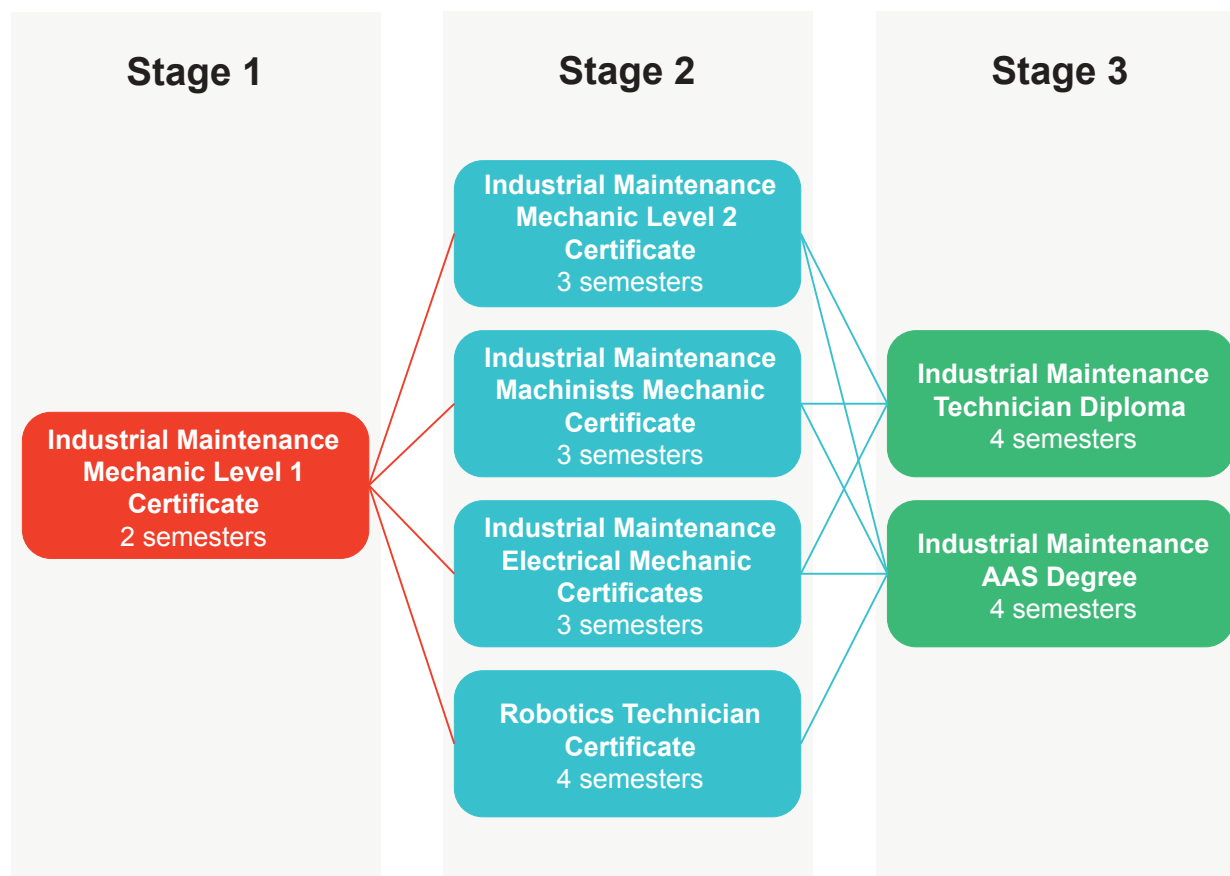


Electrical technology was another pathway offered at WKCTC from fall 2015 through spring 2018, with a total of 36 students starting in Stage 1 in the fall 2015, spring 2016, and fall 2016 semesters. Of those, 28 students (78 percent) earned the Electrician Trainee Level I certificate, and 27 (75 percent) chose to enroll in a Stage 2 electrical technology program. Most students (93 percent, or 25 total) who enrolled in Stage 2 earned a Stage 2 credential. Finally, two-thirds of students (24 total) who began Stage 1 ultimately enrolled in a Stage 3 certificate, diploma, or associate's degree program in electric technology. Of those, 75 percent (18 students) earned a Stage 3 credential. Once again, this represents a sharp improvement from the baseline (fall 2014 to spring 2016) period where just over half (56 percent) earned a Stage 1 credential and only one student went on to earn a Stage 3 credential.

### WKCTC Electrical Technology Pipeline, 2015-18

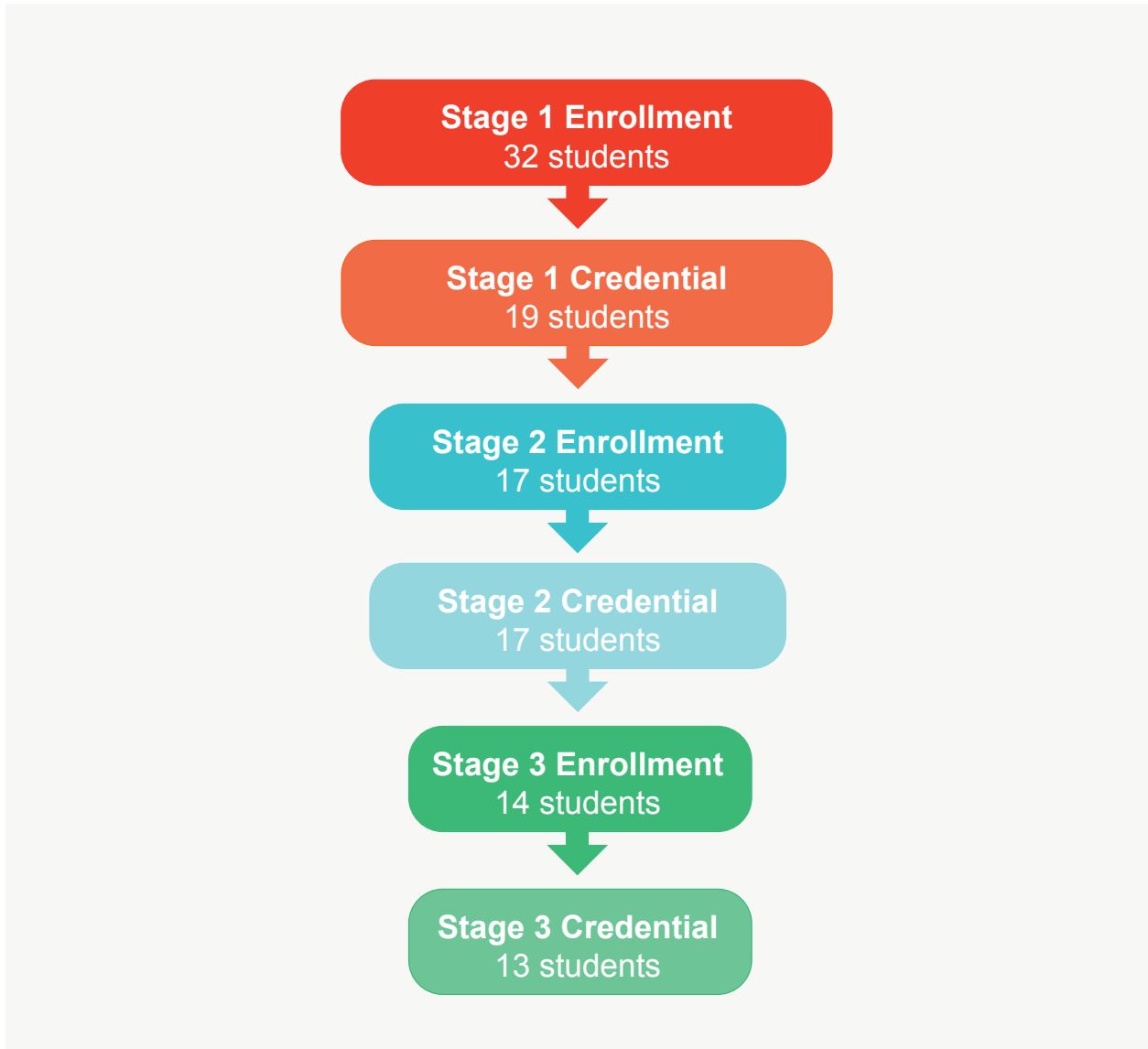


## Industrial Maintenance Technology Pathway and Student Outcomes

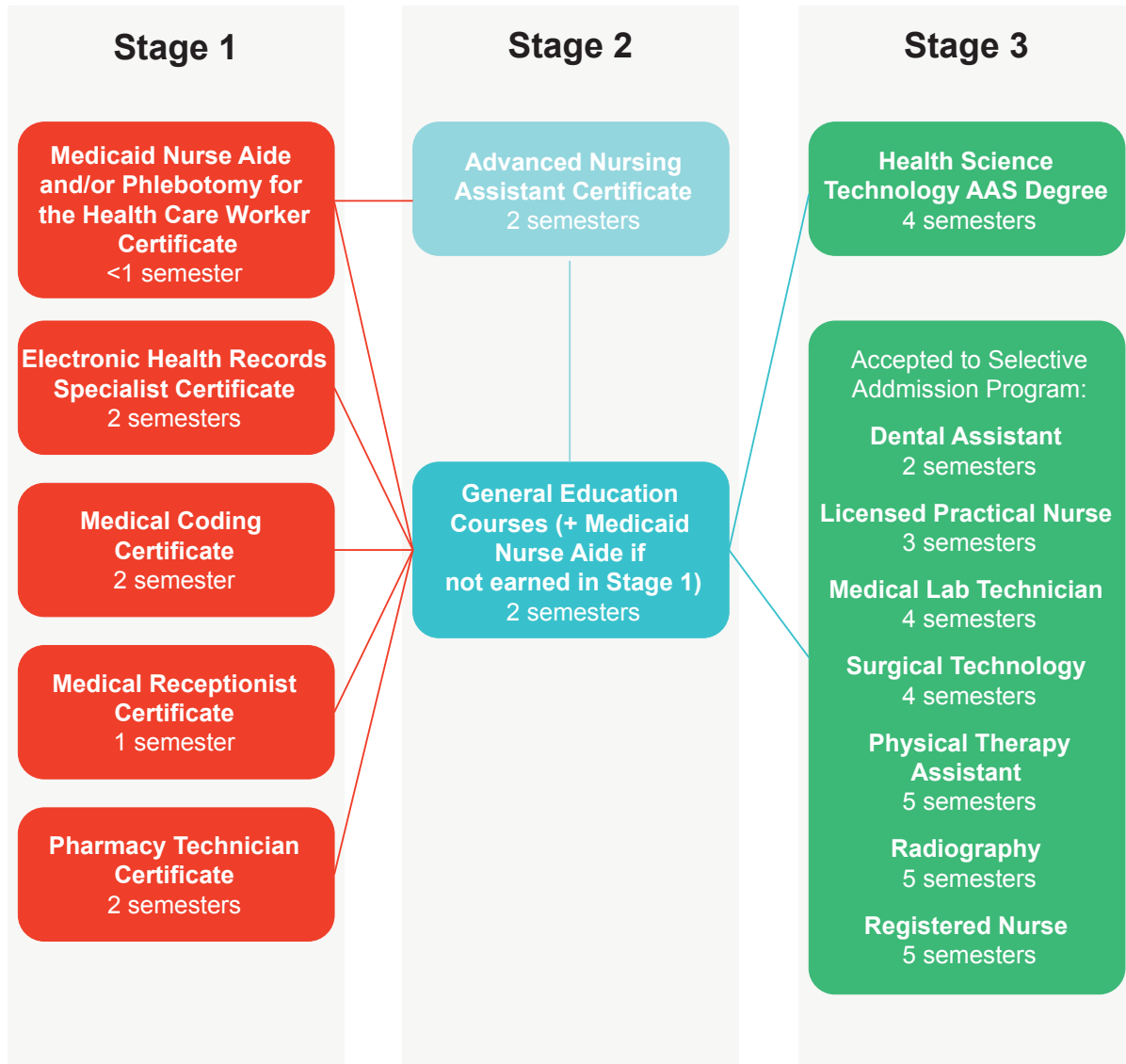


A third pathway offered by WKCTC between fall 2015 and spring 2018, with Stage 1 starts in fall 2015 and fall 2016 only, was the Industrial Maintenance Technology program. A total of 32 students enrolled in Stage 1, and 59 percent (19 students total) earned an Industrial Maintenance Mechanic Level I certificate. Seventeen students (53 percent of those who began in Stage 1) persisted and enrolled in Stage 2. All 17 students (100 percent) earned a Stage 2 credential as an Industrial Maintenance Mechanic Level II, Machinists Mechanic, or Robotics Technician. Fourteen students (44 percent of the original cohort) went on to enroll in a Stage 3 Industrial Maintenance diploma or associate's degree program. Of those, 13 students (93 percent) completed the pathway and earned a Stage 3 credential. By comparison in the baseline period, fall 2014 through spring 2016, no students earned a Stage 1 credential, and only one student completed a Stage 2 and Stage 3 credential.

## WKCTC Industrial Maintenance Technology Pipeline, 2015-18



## Health Care Pathway and Student Outcomes

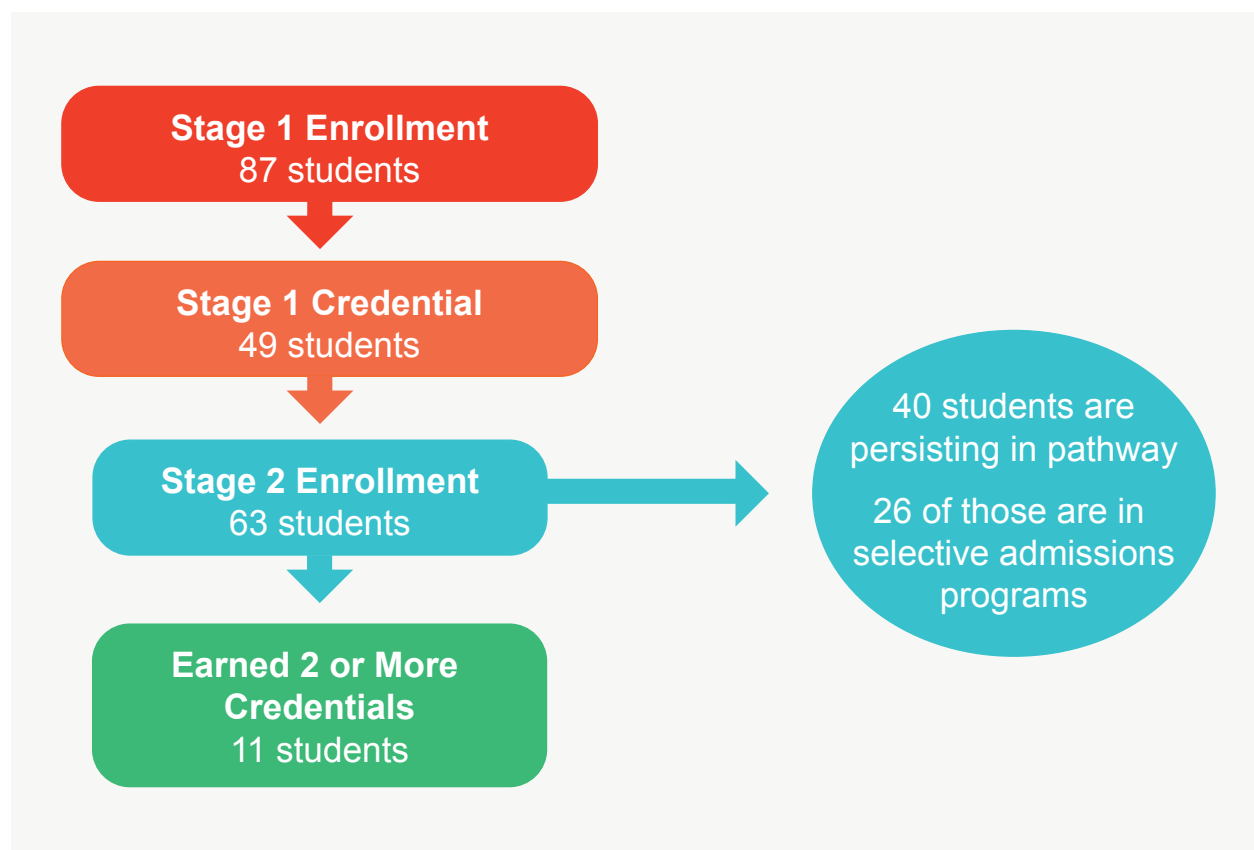


As previously discussed, the meta-major allows WKCTC health science students a pathway to an associate's degree that is not dependent on being accepted into one of the college's highly competitive selective admissions programs.<sup>5</sup> Beginning in fall 2016 and continuing in the spring 2017 and fall 2017 semesters, a total of 87 students enrolled in Stage 1 of the health care pathway. Of those, 49 students (56 percent) earned a Stage 1 credential. Sixty-three students (72 percent) went on to enroll in a Stage 2 option. Eleven students (13 percent of the original cohort) earned two or more credentials through fall 2018, and four students earned their HST AAS degree. Importantly, students are persisting in their health care pathway programs, with 40 students (46 percent) still



enrolled in fall 2018, including 26 who were accepted into a selective admissions program. This represents an improvement over the baseline period (fall 2014 through spring 2016), where 41 percent of students earned a Stage 1 credential and just 7 percent earned two or more credentials. Prior to implementing the Accelerate You! model, a student who began in developmental courses had a 1 percent chance of being accepted into a selective program. In the first two years of Accelerate You!, 66 percent of students who would have previously started in developmental education who applied to a selective admissions program were accepted.

### WKCTC Health Science Technology Pipeline, 2016-18



## Feedback on the Accelerating CTE Program at WKCTC

Forty-four faculty and staff involved in the Accelerating CTE program at WKCTC responded to surveys conducted in the fall 2017 and fall 2018 semesters. The majority of respondents (72 percent) strongly support the Accelerating CTE model, agreeing that it leads to improved student success. Survey respondents reported strong support for each of the core elements of the model as critical to student success, but with varying degrees of emphasis: 89 percent emphasized the importance of supplemental instruction, 70 percent comprehensive student support services, and 41 percent each team teaching and career pathways. Asked how the program had changed over the last three years, one respondent noted:

*“It has become a part of the college culture moving from a technical program into transfer programs. The concepts of acceleration and student supports that are applied in [Accelerating CTE] have broad reaching applications resulting in increased retention and student success.”*



## Team Teaching

West Kentucky's approach to team teaching is an "embedded tutor" model, where the success coach is focused on basic/study skills and the course instructor is responsible for content teaching. Of the 31 respondents who completed the team teaching survey questions, the majority (81 percent) reported that team teaching makes "some difference or a big difference" for students in the classroom. As one teacher described it, *"I have multiple sections with similar students. The sections with the team teacher are more successful. I am able to give more opportunities to practice skills and with both of us in the room more instant feedback is available to students."* A common reflection among survey respondents was how important that "second perspective" provided by the team teacher was for students. *"The team teacher helps fill in the gaps for the students. The students see the team teacher as more approachable than the lead teacher."*

Asked about the challenges associated with implementing the team teaching approach, WKCTC respondents identified several common issues: finding the right balance between teaching roles (26 percent), communicating with students about the approach (19 percent), and understanding the course content (16 percent). Several respondents noted that they are now more aware of student skills needs and the challenges students face in the classroom.

## Supplemental Instruction

At WKCTC, all students can participate in supplemental instruction, and some students are required to participate based on placement test scores or enrollment in specific programs. Supplemental instruction is typically offered once per week by adult education or developmental education instructors, known locally as "success coaches." Of the 21 faculty and staff who responded to questions about supplemental instruction, the vast majority (90 percent) reported that supplemental instruction made "some difference or a big difference" for student success in the classroom. As one instructor described it:

*"The support hour is when students can really get help with any material they are struggling with. They receive tutoring from the success coach, and they also help one another. Those who attend the support hour, or schedule one-on-one tutoring with their success coach, usually always succeed in the class."*

Another instructor reported, *"The students who attend and participate seem to do better in class than even they expect."* Instructors at WKCTC identified scheduling and student engagement as the most challenging aspects of implementing supplemental instruction.

## Student Support Services

West Kentucky offers a range of student support services to increase student success, including intrusive advising, success coaching, first-year experience courses, financial aid, employment services, transportation assistance, housing assistance, childcare assistance, and health/mental health services.

Asked which services are most critical to student success, WKCTC instructors, administrators, and staff identified each of these, with several noting that the combination of services is what makes a difference. Success coaching, financial aid, and food assistance were the most commonly identified as support services the college should grow to better support student success. Asked about the biggest factor limiting student success, WKCTC instructors and staff identified limited basic skills/lack of college readiness, family responsibilities, and workload.

The faculty, staff, and administrators offered a number of suggestions for building on the Accelerating CTE experience. Those include multiple suggestions to expand/invest in more success coaching; making classes easily available to students both in terms of times and locations; offering support services at least one evening (after 6 p.m.) per week; and expanding into other programs/

pathways at the college. In reflecting on their experience in Accelerating CTE, one WKCTC respondent noted, *“It has been a great experience for me. I have learned a lot about what helps a student be successful.”* Another said, *“The success coach component as well as the learning community structure appear to have the most significant impact on the student experience in the program.”* Finally, an instructor shared, *“Thanks to [Accelerate You!], many more of the students in my technical program can achieve the college dream.”*

## Student Feedback on the Accelerating CTE Program at WKCTC

In response to surveys conducted in fall 2016, spring 2017, fall 2017, and spring 2018, a total of 89 WKCTC students provided feedback on their experiences in the local Accelerate You! program. The largest share of respondents (42 percent) were from health science technology or other health care-related programs. Eighteen percent of respondents were from electrical technology and 16 percent from industrial maintenance technology; other respondents represented a range of programs including welding, CAD, logistics, business administration, diesel technology, and computerized manufacturing and machining. Asked





about the components of the Accelerating CTE model, 64 percent reported that they were in at least one class with a team teacher some or all of the time, and 31 percent reported that they would have benefited from more team-taught classes.

A larger share (82 percent) reported that they had participated in supplemental instruction outside of class, including one-on-one tutoring, supplemental instruction with small groups of students, and extra class sessions or online tutoring one or more times per week. More than one-third of respondents (38 percent) reported that they would have benefited from additional instruction or support outside of the classroom. Most respondents (70 percent) reported that the program was preparing them “well or very well” for work in their targeted field, and an even larger share (84 percent) reported being “well or very well” prepared for further education. The majority (81 percent) would recommend their program to a friend or family member.



## Conclusions from WKCTC's Accelerating CTE Experience

West Kentucky Community & Technical College continued its commitment to integrated pathways from AO-Kentucky into Accelerating CTE. The college embraced the opportunity to test the Accelerating CTE model, adapt it to the college's needs, and expand support options for students. Student persistence and completion rates at every stage were consistently higher when Accelerate You! was offered than in the baseline period for both applied technology and health care pathways. West Kentucky was also the only college to truly embrace the companion ROI piece to help demonstrate internally to college administrators the impact of team teaching and supplemental instruction on student success and the college's persistence and completion numbers.

Since Accelerate You! students are those who would have previously been required to enroll in developmental education classes based on placement test scores, students are no longer wasting valuable time and money in courses that don't count for credit toward a credential. The co-enrollment model of the developmental

education students in college-level courses, coupled with the support of the team teacher, has allowed more students to realize their dream of being successful in college. The significant jump in the share of students accepted into selective admissions health care degree programs is illustrative of that impact. West Kentucky expanded the model to a total of 12 programs through the fall 2018 semester. Going forward, Accelerate You! will focus on general education math and English 101 to help developmental-level students succeed in any chosen pathway. Success coaches will attend designated math or English classes at least one day per week and continue to offer supplemental instruction one hour per week.

Beyond the expansion of Accelerate You! to new programs at the college, WKCTC also enhanced and updated the Accelerate You! model over the course of the project. One of the key enhancements that the college implemented was the "Student Expectations and Agreement" form. This form, which students were required to read, sign, and submit when enrolling in the program, outlined what the college was providing to students (block scheduling, extra support time, and college-level credits) and what the students were expected to do in return (attend class on time, complete required coursework, and attend 80 percent or more of the available

extra support time). Program leads at the college shared that the document is helpful for students to understand the opportunity they are being given to bypass developmental education courses and to emphasize the commitment students need to make to be successful.

Administrators at WKCTC identified multiple accomplishments from their participation in Accelerating CTE, including increased communication between divisions and programs on campus, increased faculty awareness of

best practices for student support and retention strategies, and increased success coach staff to meet growing demands.

As one administrator noted, *“Our faculty is willing to go the extra mile when they realize the success these students are having and the impact collaborating with a success coach can have on their teaching, retention, and student success.”* Most importantly for WKCTC, developmental-level students who participate in Accelerate You! have increased access and success in college-level coursework.



## WKCTC Service Area Profile

COUNTY	BALLARD	CALLOWAY	CARLISLE	FULTON	GRAVES	HICKMAN	LIVINGSTON	LYON	MARSHALL
Population	8,152	38,616	4,890	6,259	37,259	4,625	9,288	8,268	31,177
Median age	43.3	34.7	42.2	43.1	40.3	48.3	45.8	49.2	44.8
Under age 18	22.3%	18.1%	22.4%	21.0%	24.4%	19.8%	20.8%	14.2%	20.6%
Over age 65	19.4%	16.4%	20.0%	18.7%	17.6%	23.4%	20.1%	24.1%	21.2%
Racial/ethnic makeup	93.6% white 3.9% black 1.6% two or more races	91.3% white 3.7% black 2.4% two or more races	96.1% white 1.6% black 1.4% two or more races	71.3% white 24.4% black 3.6% two or more races	90.5% white 4.7% black 2.1% two or more races	87.7% white 8.7% black 2.6% two or more races	97.4% white 2.0% two or more races	91.8% white 5.4% black 1.5% two or more races	97.8% white 1.0% two or more races
Educational attainment: high school or higher	85.3%	88.4%	83.5%	79.0%	83.5%	77.5%	83.1%	86.2%	86.6%
Median household income	\$42,988	\$39,269	\$38,860	\$28,274	\$40,369	\$38,036	\$43,472	\$50,268	\$49,126
Individuals below poverty level	18.2%	22.4%	17.3%	25.3%	19.2%	14.8%	16.2%	14.1%	10.8%
Unemployment rate, Dec. 2018	5.7%	3.5%	3.7%	5.1%	4.4%	4.3%	5.8%	4.7%	4.9%
Industries with highest employment	1. Manufacturing 2. Health care and social assistance 3. Retail trade	1. Educational services 2. Manufacturing 3. Health care and social assistance	1. Manufacturing 2. Health care and social assistance 3. Retail trade	1. Manufacturing 2. Health care and social assistance 3. Educational services	1. Manufacturing 2. Health care and social assistance 3. Retail trade	1. Manufacturing 2. Health care and social assistance 3. Retail trade	1. Retail trade 2. Health care and social assistance 3. Manufacturing	1. Manufacturing 2. Retail trade 3. Health care and social assistance	1. Manufacturing 2. Health care and social assistance 3. Retail trade

Source: American Community Survey 5-Year Estimate, 2013-2017; Bureau of Labor Statistics, Local Area Unemployment Statistics Map, December 2018.

# Endnotes

1. A profile of the other counties in the WKCTC service area is included at the end of the case study report.
2. See Lauren Eyster, Theresa Anderson, Robert Lerman, Daniel Kuehn, Burt Barnow, Maureen Conway, Ranita Jain, and Marcela Montes (2018). *Findings from the Accelerating Opportunity Evaluation*. Washington, DC: Urban Institute.
3. West Kentucky provided aggregate student persistence and outcome data for each career pathway in the baseline period and in the Accelerating CTE program period. Researchers then calculated differences in completion and credential attainment between the two periods. Because the evaluation is based on a simple comparison of aggregate data, findings are suggestive but should not be considered a confirmation of impact.
4. Diplomas represent the completion of technical training, while degrees require a mix of technical training and general education coursework.
5. It should be noted that students also have the option of starting in general education classes, and the majority of Stage 1 credentials are not prerequisites for the AAS programs, though the Stage 1 coursework may count in a degree plan.



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