



CLEVELAND
COMMUNITY COLLEGE

CASE STUDY

Cleveland Community College Responds to Local Industry 4.0 Needs



Students learn critical technology skills for manufacturing careers

THE CHALLENGE

Cleveland County North Carolina, just an hour west of Charlotte, is a vibrant region and industries like advanced manufacturing, aerospace, and automotive are growing at a rate more than double the national average. There was no manufacturing training program in the region that could provide local manufacturers with prospective employees with basic technical skills. Leadership from area manufacturers met with Cleveland Community College faculty to discuss how they might partner to create programs that would benefit students, the college, and companies looking for skilled workers.

“There is high demand in our area for this type of work, so automation and electronics are important. We also have new manufacturers considering this area now because they understand what we’re building here.”

Donna Moore, Automation Instructor



CLEVELAND COMMUNITY COLLEGE

Integrated manufacturing training prepares students for real industry roles



“We had our open house in the new building, and when the industry executives walked through and saw the equipment sitting there, they were impressed.”

Walter Spurling, Industrial Systems Instructor

HOW IT STARTED

Cleveland Community College (CCC) is in Shelby, North Carolina. The school’s mission is to drive student success and economic impact for individuals and businesses in the community through diverse education and training opportunities. For more than 50 years, the college has helped students earn a diploma, degree, certificate, or learn a trade.

CCC has an industry advisory board made up of representatives from local manufacturers who wanted to partner with the college to develop meaningful training to allow graduates to move immediately into good jobs in the community. The advisory board suggested that CCC begin teaching Programmable Logic Controllers (PLCs) that can be integrated into a variety of industrial applications. Programmable Logic Controller (PLC) courses teach students how to program for use in manufacturing applications, such as electro-pneumatics or controlled hydraulic systems.

LEARNING ABOUT JOBMASTER PLC

Working with one of their suppliers, Carl Latini at Learning Labs, CCC reviewed several platforms. They wanted to be able to teach students multiple topics, such as hydraulics and pneumatics, in one system that could culminate in a capstone project. They chose to purchase Intelitek’s Programmable Logic Controller courseware and labs. The Intelitek solution provides students with a solid grasp of industrial PLCs, ladderlogic programming, input and output devices, and electrical control. PLC hardware that is part of the JobMaster Training Station is integrated with PLC software that lets students observe the control logic behind the operation of industrial PLCs. Students then learn to program a PLC and simulate applications that require electrical control.

“When we saw the JobMaster platform, we really liked that it was modular,” said Spurling. “So, we also purchased the Maintenance Cell that includes

CCC'S SUCCESS FACTORS

"The number one thing that was beneficial for us was the advisory board kicking it off," said Spurling. "They came to us and said, 'this is what we need.'" Carl Latini was another key part of their success. "He was passionate and a big part of why we are so happy with Intelitek," said Spurling. "We didn't have to wait to have questions answered, when we were setting up the equipment, Latini from Learning Labs was here. Whatever we needed he was right on top of it."

Moore said, "being able to match the program to the needs of the local manufacturers was also a key factor." She noted that most of the training in electric maintenance is on the fly even the decisions to invest in certain equipment. "You just learn as you go along," she said. "Downtime is expensive for factories. If we can provide enough training that our students can handle a reboot on the night shift, manufacturers will save money."

"We're not teaching students how to be experts on their specific equipment," said Spurling. "We're giving them a base of knowledge that will get them in the door, and then their employer will train them on their specific equipment."

Spurling and Moore agreed that they are prepared to train as many students as local employers need. As long as the companies have the need, the CCC team is committed to training graduates for the local workforce.



Cleveland Community College Advanced Technology Center Lab

IMPLEMENTATION

CCC used their first JobMaster for PLC training starting in Fall 2020. Because it was during the pandemic, only four students were enrolled. Spurling noted that while there is some classroom lecture and theory, the training course is mostly hands-on. Most learning material is conveyed while students are working on the platform itself.

Students use LearnMate, the Intelitek learning management system, to take them progressively from basic ladder logic operations making things move to more advanced automation courses based on partners' software like the Allen Bradley Studio 5000. "We just received CompactLogix modules from Intelitek," said Spurling. "We really look forward to making the shift from Intelitek straight into using the most advanced PLCs available with the Studio 5000 programming software that is used in the field—it will be a seamless transition," he said.

Both Spurling and Moore's programs offer associate degree programs. However, the PLC program is embedded in the electronic engineering program, and the automation program requires the first two PLC courses. There are four PLC courses in the engineering program, so basically one per semester for two years.

introduction to maintenance, electrical maintenance, and electronic maintenance." They also chose Intelitek's Industrial Maintenance Training that teaches the specialized skills of mechatronics and industrial maintenance found in today's factories.



THE RESULTS

With the purchase of additional JobMaster stations, Spurling and Moore's programs have capacity for 20 students.

What happened to the initial four students who graduated last spring?

All four of them received job offers before they graduated from the companies they worked at during their internships. The workplace employs them for an internship, and they get college credit for working there. When students graduate, those companies are free to offer them a full-time job. Although there were only four students, the school to workplace path was 100% successful.

There is a larger class graduating in Spring 2023.

INTELITEK PARTNER NETWORK

Our business and technology partners share our vision of enhancing Career and Technology education by helping schools achieve their CTE goals.

Cleveland Community College was supported by our partner in the region, Learning Labs Inc.



Cleveland Community College Advanced Technology Center



ABOUT CLEVELAND COMMUNITY COLLEGE

Cleveland Community College wants every student to graduate with a degree, diploma, or certificate and understands that success does not look the same for every student. CCC believes that a student succeeds when they have the skills necessary to succeed in a highly competitive workforce or academic environment; or, have improved their quality of life through the achievement of personal goals.

For more than 50 years CCC has met students where they are whether they need to finish a high school degree, transfer to a four-year school, earn a degree, diploma or certificate, learn a trade, or build on career skills they already have, and helped them to excel.

Cleveland Community College exists to serve the citizens of Cleveland County with a mission to help students achieve their educational and career ambitions.