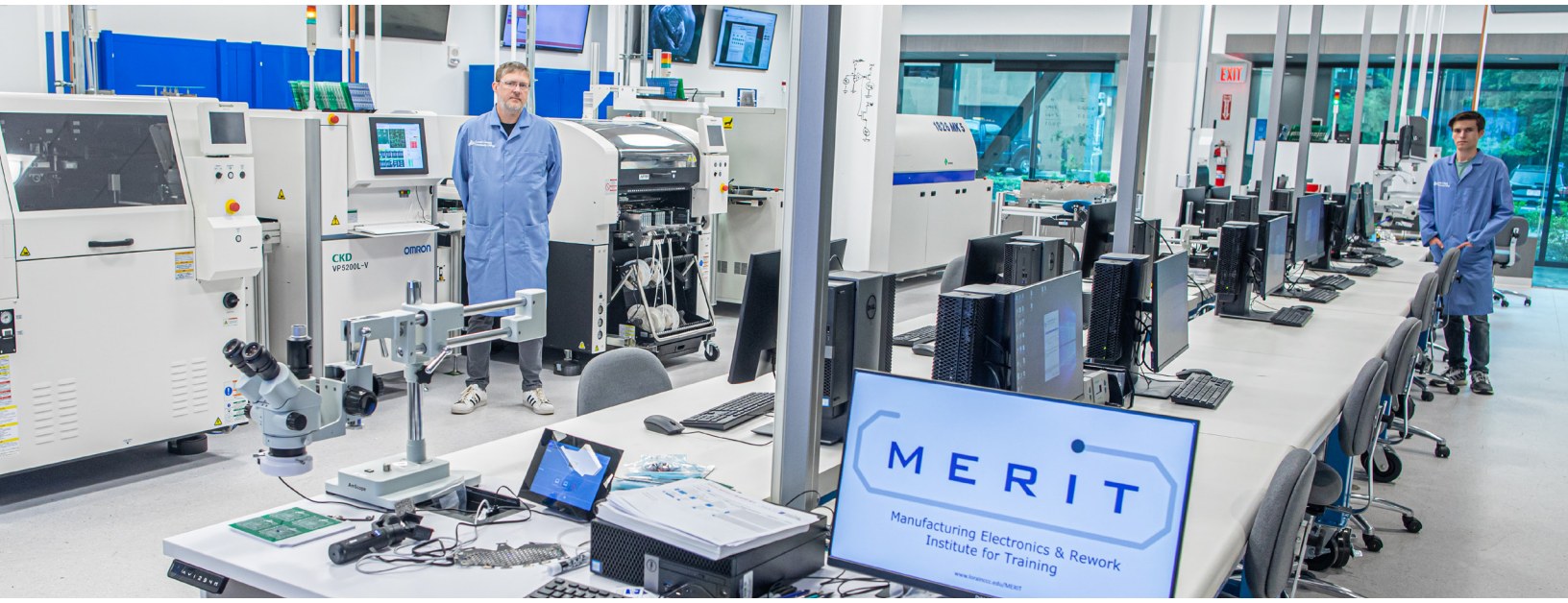
Success story



Omron provides valuable SMT line equipment to give community college students hands-on experience

Lorain County Community College (LCCC) in Elyria, OH was seeking a better way to train its engineering students on the cutting-edge technologies used in electronic device manufacturing today. The college responded to the needs of its students and the job market by creating the first bachelor of applied science degree in microelectronic manufacturing. This industry-tailored, hands-on program features core content in printed circuit board (PCB) and microelectronic manufacturing, design, assembly and prototyping with additional content in quality, electronics and drafting.

The program gained approval from the Ohio Department of Higher Education in 2018, and LCCC started working with a variety of local partners to ensure that students receiving the degree would cultivate a skill set that directly meets the needs of the industry. A significant part of this effort involved purchasing a full surface-mount technology (SMT) line to give students hands-on training. The degree program also requires an internship, which industry employers agreed to provide.

LCCC turned to Omron for help given the company's 30+ years of experience and its reputation as a leader in automated inspection. In addition to being one of the world's largest and most sustainable suppliers of inspection equipment, Omron maintains a strong installation base in communities surrounding LCCC, so educating students on Omron equipment allows students to be of immediate value to the market upon graduation.

Business need

Lorain County Community College needed to provide its students with hands-on practice for its new microelectronics manufacturing degree program.

Unique solution

Omron helped LCCC build a fully functional SMT line by contributing solder paste inspection and automated optical inspection equipment.

Customer benefits

The degree program has been quite successful, and Omron's proximity to the equipment allows the company to verify that everything is being used correctly.

The solution
Advanced 3D SPI and 3D AOI equipment

The need

The school's fundamental requirement was to prepare Lorain County's students to thrive in a technically specialized industry with great demand for a skilled workforce. From next-generation smartphone parts to electronics devices used in biomedical and automotive applications, a microelectronics background would cover a broad range of needs in today's competitive manufacturing environment. LCCC spoke with companies in this sector and asked them what they wanted their workforce to know.

Upon determining these knowledge requirements, LCCC's challenge was to offer a significant amount of relevant, hands-on practice. This could only be achieved with the very latest automated manufacturing and inspection technologies and a strong support network. Fortunately for LCCC, the Omron team could provide the ongoing training and support needs of an educational use case to ensure the success of this new and exciting program.

The technology

To help LCCC build its practice SMT line, Omron contributed its powerful VP5200 3D solder paste inspection (SPI) system and its advanced VT-S730 3D automated optical inspection (AOI) system along with related offline programming, defect review and data reporting software. The automation partner also assisted with training materials and offered in-person or virtual Q&A sessions with advice about equipment, technology, and work from experienced industry professionals.

Omron 3D SPI and 3D AOI systems offer high-quality and stable inspection capabilities to support the electronics manufacturing process. Learning operational and programming skills on industry-leading equipment gives students a true understanding of critical processes and prepares them for their future jobs. The user-friendly interfaces of these systems make training more productive.

The outcome

LCCC's new and innovative degree program is in its first year of implementation as it continues to make great strides toward becoming fully operational. The microelectronics industry has responded extremely well to the point of providing sponsorships, offering technical expertise, sending employees to certification classes, and placing students into jobs. Many people already in the workforce have signed up for the program to advance their careers.

Given that classes are held in late afternoon to support students' work schedules, Omron has enjoyed the side benefit of being able to use LCCC's lab for local demonstrations of inspection equipment with local companies interested in automated solutions. Omron always ensures that the instructors are involved in these demos so that they can refine their knowledge of the machines and their programming. This lets Omron confirm the equipment is being used correctly and working as expected, and that proper programming techniques are being conveyed to students.