



ELECTRONIC MFG. SERVICES (EMS)

ASM and RIT's Expanded Partnership Produces Tomorrow's Industry Leaders

By Michael Skinner, Editor

In 2017, ASM Assembly Systems and the Rochester Institute of Technology Center for Electronics Manufacturing and Assembly (RIT CEMA) expanded their strategic partnership. The agreement committed additional resources to foster technology research, workforce development programs and industry training initiatives. More than conceptual commitments, both ASM and RIT have undertaken specific actions that continue to produce tangible results.

Expanded Investment

The two organizations have a long history of cooperation. ASM placement equipment was first installed at RIT in 2003, giving students access to some of the industry's most advanced platforms.

Recently, however, the dedication to this promise of technology availability has been expanded significantly by both parties, in recognition of the importance of a well-equipped assembly line and analysis tools to support modern-day electronic complexities.

The 2017 delivery of ASM's DEK Horizon 01iX stencil printer and SIPLACE SX2 placement system supported several student-led research initiatives and important thesis work. Recently, the newest ASM DEK NeoHorizon 01iX was

installed at CEMA.

Other suppliers have made capital investments to complete the assembly. The lab's equipment includes high-power microscopes and AOI systems,

not only to build assemblies, but to conduct in-depth root cause analysis evaluation that informs process and product development.

"The new DEK printer will be integral to several successful projects at CEMA," says Jeff Schake, ASM senior engineer. Schake works out of the RIT CEMA facility and has mentored several students. "With this system, we can process smaller, thinner boards, simplify tooling setups and seamlessly build double-sided assemblies through the use of Grid-Lok. We can simulate industry printing tempos, due to enhanced understencil cleaning efficiency and automatic solder paste management." According to Schake, these capabilities, along with the available analytical tools, have made certain projects possible and have vastly improved the quality of the lab's work.

While equipment investment is vital to the technology initiatives at CEMA, the commitment of staff and supplier partners with technical expertise and broad industry perspective provides valuable mentoring for graduate students.

This support ultimately ensures a more complete, practical educational experience to equip students for positions of leadership in the electronics community.

Dr. S. Manian Ramkumar,



From left: Dr. Martin K. Anselm, director of RIT's CEMA lab, Dr. S. Manian Ramkumar, dean of RIT's college of engineering technology, and Jeff Timms, managing director, ASM Americas.

dean of RIT's college of engineering technology, notes that it is board-level involvement, along with the guidance of Dr. Martin K. Anselm, director of the MMSI graduate program and CEMA lab and the presence of Schake, is integral to setting the direction of instruction.

"Among our distinguished dean's advisory council is ASM Americas managing director Jeff Timms. The council, which focuses on the curriculum and higher-level direction of the college, requires input from people like Jeff who, with his 35-plus years of industry experience, lends an industry-based perspective that broadens the scope of the program," says Ramkumar. "This is immensely important for our students as they prepare for influential roles at top electronics companies."

Technology Research

According to Timms, ASM's partnership with RIT has led to research benefitting the entire industry. It has provided indispensable hands-on experience for future engineers, facilitated training for ASM customers and staff,

The lab has performed veteran training on SMT equipment for SMT Tech-A positions in the Rochester area with an 80 percent fulfillment rate. The New York State funded trainings include IPC-610 and J-STD-003 certification.

and has generated important data that is applied to ASM research and development efforts across the product spectrum — from industry 4.0 initiatives to new platform capability.

"We are incredibly proud of our longstanding involvement, the outcomes the partnership has achieved, and we look forward to future shared strategic successes," says Timms.

The partnership has developed a wealth of research, facilitating process improvements, technology development and workforce training. Projects include: OEM ultra-fine pitch process road mapping testing; low-temperature

solder process and reliability research for telecom; printing and placement quality experiments; conductive trace printing on flexible substrates, photonic integration reliability testing and assembly; anisotropic conductive adhesive assembly and reliability; and



RIT's Center for Electronics Manufacturing and Assembly (CEMA) lab, in Rochester, New York.

numerous builds for industry research collaborators in the areas of cleaning, component development and product design.

The lab was also used for DEK VectorGuard™ high-tension stencil printing research, which was presented at SMTAI 2019, as well as a total of six student-led research papers at the 2018 and 2019 conferences.

In addition, the lab has performed veteran training on SMT equipment for SMT Tech-A positions in the Rochester area with an 80 percent fulfillment rate. The New York State funded trainings include IPC-610 and J-STD-003 certification. CEMA has also trained ASM employees in C++ programming.

The CEMA lab has many future projects planned, including becoming a pilot installation for Industry 4.0 and factory software projects, IPC evaluation as a possible CFX demo location, hiring a printed electronics professor to enhance research. Specific future areas of research include materials and processes for ultra-fine-pitch processing and laser soldering rework.

Preparing Industry Leaders

In addition to its research work, the CEMA lab has also served as an important demonstration site for sever-

al local customers considering upgrades to existing printing or placement equipment.

In cooperation with RIT staff, ASM engineers have run several successful demonstrations over the past year, resulting in the sale of ASM machines to customers in the northeastern U.S.

Continuing to expand the knowledge base for academic customers — the students — and recognizing the increasing role of robotics in electronics assembly, RIT recently renamed its manufacturing engineering technology degree program to robotics and engineering manufacturing technology. The new distinction has already increased the student population in the program by 150 percent and the degree outcomes for robotics are now AVID certified. Going forward, the inclusion of advanced automation principles will be increasingly important for CEMA students.

"Clearly, the primary aim of this degree program at RIT, which includes SMT training in the CEMA lab, is to develop tomorrow's electronics industry professionals," says Ramkumar. "With our faculty and with mentorship from experts like Jeff Schake, RIT continues its successful track record in this area."

In the last three years, the lab has produced 15 graduate students, as well as more than 40 undergrads, with approximately 90 percent of the total number working in industry today.

Notably, leading companies in the consumer electronics, semiconductor packaging, aerospace, and contract electronics manufacturing sectors have recruited and hired RIT students. And, the university's relationship with the business community continues to expand its strategic initiatives to foster career opportunities for its students.

"As one of the first and most steadfast CEMA supplier partners, ASM's contributions to technology, education, community, and progress, cannot be understated," says Ramkumar. "We are excited about our continued shared commitment."

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