

# Robert C. Byrd Institute Develops Manufacturing Workforce Through Innovation and Technology

Innovation and technology are helping West Virginians compete in a global marketplace thanks to collaboration by the Robert C. Byrd Institute for Advanced Flexible Manufacturing (RCBI), local manufacturers and partners such as Tooling U-SME, which delivers competency-based learning and development solutions to manufacturers and educators across the country.

“There are not enough workers pursuing careers in manufacturing,” said Lucinda Curry, director of workforce development at RCBI. “And for companies to compete successfully and grow, they often require customized training programs and apprenticeships to increase the skills of their current workforce, raising them to a higher level.”

The talent shortage in manufacturing is a challenge across the nation, especially as Baby Boomers retire. The Tooling U-SME Millennial Survey shows that eight out of ten manufacturers are concerned about meeting their workforce needs within the next five years.

With manufacturing jobs making up 6.4 percent<sup>1</sup> of West Virginia’s total employment,

RCBI is helping local manufacturers look at innovative ways to address this skills gap. As West Virginia’s Advanced Manufacturing Technology Center, RCBI offers a variety of general and customized training courses that include its Machinist Technology/CNC Program, which includes a college degree option, as well as its model apprenticeship programs. Additionally, with one of its higher education partners, Mountwest Community & Technical College, RCBI has introduced an Additive Manufacturing concentration in the Engineering Design Technology program.

“The manufacturers we work with are across the board in terms of industries – automotive, aerospace, chemical, energy, hardwood flooring, medical device and utilities – and our customized programs can meet each company’s individual needs,” Curry said.

RCBI’s customized programs range from a two-day blueprint reading class to a four-year apprenticeship program conducted onsite at a local manufacturer’s shop. Integrating an online curriculum from Tooling U-SME is part of a blended learning approach that also includes on-the-job (OTJ) training.

“Our instructors initially weren’t sure about moving online but once they tried it, they liked it,” Curry said. “Tooling U-SME’s tracking and built-in assessments help them see how much students are accomplishing.”

The instant feedback and automated grading and homework assignments save considerable administrative time for instructors. Tooling U-SME’s online content maps to state, system or program level, and to national credentials including the NAM Skills Certification System, covering certifications such as NIMS, AWS, SME and MSSC.

“A big benefit is that Tooling U-SME classes are standardized and vetted with subject matter experts so instructors don’t have to write the curriculum,” Curry said. “These courses are used by many Fortune 500® companies, which bolsters RCBI’s credibility in the marketplace.”



*RCBI’s blended learning approach integrates an online curriculum from Tooling U-SME and on-the-job (OTJ) training.*

<sup>1</sup> “The Manufacturing Footprint and the Importance of U.S. Manufacturing Jobs,” Economic Policy Institute, January 22, 2015.

Since introducing Tooling U-SME in 2010, RCBI has provided training to more than 400 students who have completed more than 3,300 online classes. RCBI boasts a job placement rate of 90 percent, a great advantage for its diverse students.

“At RCBI, about 80 percent are non-traditional students including veterans, dislocated workers looking for new careers, and underemployed workers looking for better opportunities,” Curry said.

RCBI also is committed to enhancing opportunities for women. “We want more women to discover the rewarding and lucrative careers available in manufacturing,” Curry said.

To build awareness, RCBI works with diverse groups including Wider Opportunities for Women (WOW), and presents summer camps and participates in career and job fairs that emphasize today’s “new manufacturing” to help mirror the reality of today’s production lines and shop floors.

It’s not just adults and non-traditional workers who benefit from RCBI initiatives, according to Curry. RCBI is stimulating interest in entrepreneurship and “making things” through STEM (Science, Technology, Engineering and Mathematics) activities introduced at an early age. With hands-on learning and outlets for youthful creativity through LEGO robotics events and 3D Printing Camps, RCBI is attracting future generations to this exciting industry.



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### Customized Apprenticeship Programs

RCBI’s customized apprenticeship programs, with open enrollment, are another way manufacturers are building their pipeline of skilled workers.

In one case, apprentices from several companies meet two evenings a week during non-work hours at the RCBI Advanced Manufacturing Technology Centers in Bridgeport, W.Va., and Huntington, W.Va. Classroom and online courses cover areas including safety, manual milling and CNC programming. Apprentices then apply this knowledge during their regular work hours as they learn more specialized skills.

This Machinist Apprenticeship Program is “competency-based,” meaning that apprentices progress through the training by mastering particular skills. This enables employers to measure progress and reward individual initiative.

The cost-effective apprenticeship model, offering skills training to employees from multiple companies at once, is proving a success with both employers and employees, according to Curry.

In 2015 RCBI hopes to expand the successful apprenticeship model nationally, using the Tooling U-SME curriculum. RCBI has applied for a Department of Labor grant that would accelerate the process.

“Our goal,” Curry said, “is to magnify our model Apprenticeship program to ensure that manufacturers near and far have the skilled workers they need to grow and prosper in the competitive global economy.”