Greetings,

As summertime heats up across the Mid-Atlantic region, activities at RCBI continue to focus on igniting the interests of our future workforce. With youngsters away from traditional classrooms, we’re hosting a series of camps that focus on Additive Manufacturing with 3D Printing, Machining and Robotics, as well as presenting their teachers with the opportunity to incorporate 3D Printing in their classroom lessons. By reinforcing STEM (science, technology, engineering and math) topics, both students and educators are getting a refresher on the key skills young people need to develop as they prepare to consider future career options.

This issue also presents a column by the Director of America Makes, Ed Morris, who offers insights into the innovative and revolutionary reality of Additive Manufacturing technology.

We also include upcoming events at RCBI as well as links to interesting manufacturing articles online. Thank you for spending a few minutes catching up on our latest news.
Arts & Bots camp combines learning, fun

The worlds of science and superheroes collided this month during an advanced robotics camp offered by RCBI in partnership with the June Harless Center at Marshall University.

Twenty campers fashioned their own robots from craft materials and parts created on RCBI's 3D printers. Open to students in third through eighth grade, the week-long Arts & Bots camp introduced young people to opportunities in growing high-tech fields that involve science, technology, engineering and mathematics (STEM) skills.

"For American workers to remain competitive in an increasingly global economy, we must promote and reinforce the STEM disciplines in ways that are both challenging and exciting," said Charlotte Weber, RCBI Director & CEO. "We're proud to continue to engage young minds and inspire them by collaborating with Marshall University’s June Harless Center to offer this Arts & Bots camp. Additional camps at RCBI this summer will reinforce technology by providing hands-on access to 3D design and 3D printing."

Additive Manufacturing and the 3D Printing Revolution: Why you should pay attention

Additive manufacturing, more commonly known as 3D printing, was attracting significant media attention well before the Obama administration announced in August 2012 that it was establishing a National Additive Manufacturing Innovation Institute led by the National Center for Defense Manufacturing and Machining (NCDMM). Renamed America Makes - National Additive Manufacturing Innovation Institute to better convey its role as the national accelerator for additive manufacturing and 3D printing, it is the pilot institute for the National Network for Manufacturing Innovation (NNMI) institutes to follow.

The Robert C. Byrd Institute for Advanced Flexible Manufacturing (RCBI) is a founding member of America Makes, and is an important partner in helping to spread the use of additive manufacturing in the United States. Specifically, RCBI provides critical additive manufacturing workforce training that will result in new, innovative products and grow our national manufacturing economy.

So why pay attention to 3D printing? 3D printing allows for production of never-before-possible products and makes it possible to produce many existing products more quickly and cheaply. The ability to do additive manufacturing, growing a part by precisely depositing or 3D printing material
layer upon layer, permits the creation of items with internal features that cannot be created using conventional machining. The arrival of additive manufacturing has even caused traditional mechanical manufacturing to be renamed "subtractive manufacturing" since it consists of incrementally machining away material to arrive at the final part. 3D printing, using only the material required for the finished part, radically reduces the use of excess and often expensive material, and takes less time to create, which combine to yield a lower product cost.

In short, 3D printing is a game changer. When you change the rules, you change the game, and 3D printing has a whole new set of rules. However, it will not replace traditional manufacturing. It's just another tool in the design and manufacturing toolbox, albeit a very powerful tool.

Using multiple additive manufacturing technologies, 3D printing can be done with a variety of plastics (polymers) and metals, food, and now includes printing with tissue - human tissue.

The product applications for additive manufacturing continue to expand at a rapid rate. The technology to do 3D printing was invented in the United States in the 1980s with an initial goal of rapid prototyping. Since then, the use of 3D printing has expanded to include functional prototypes, precision tooling, end-use parts, and repair and modification of traditional manufacturing parts. Innovative product applications range from toys, to jewelry, to complex aerospace components and medical devices. The parts can encompass printed mechanical structure and electronics. And, yes, simple body parts like ears are now being developed using 3D printing.

From a business perspective, it took the 3D Printing industry 20 years to reach $1 billion in size. By 2021, Wohlers Associates forecasts the industry will reach $10.8 billion. Some are predicting a steady 20 percent global growth rate for the next several years.

Working with RCBI, we're pushing for even faster growth in the United States. Our slogan captures the bottom line objective: "When America Makes, America Works!"

Ed Morris is Director of America Makes (National Additive Manufacturing Innovation Institute) and Vice President of the National Center for Defense Manufacturing and Machining.
Robotics Technology classes begin Aug. 25

Registration is underway for RCBI's Robotics Technology Program, offered in partnership with FANUC Robotics America. Available as a one-year certificate program, the training includes interactive online and classroom exercises, as well as lab assignments that involve hands-on experience. The program is available at the RCBI Advanced Manufacturing Technology Center on the Marshall University South Charleston campus. Classes begin Aug. 25, and financial assistance is available to those who qualify. For more information or to register, call 800.469.RCBI (7224) or e-mail robotics@rcbi.org.

RCBI helps Becker/SMC overcome challenges of quality certification

Earlier this year, Becker/SMC faced a significant challenge. The Huntington-based manufacturer had been restructured and was using a new business management system, both of which complicated the recertification process for ISO 9001: 2008.

Becker/SMC looked to RCBI's Quality Implementation group for assistance. Over a period of a month, Director of Quality Services Erica Cheetham worked closely with Becker/SMC employees, especially Bob Bolton, Becker/SMC's quality manager. Because the company's business is primarily overseas, Becker/SMC must be certified for ISO, as well as two other standards, ATEX and IECEx.

Marking its 75th birthday this year, Becker/SMC is owned by Becker Mining Systems, a global supplier for the mining industry. Becker/SMC designs and manufactures electrical components, open-type and explosion proof motor starters, longwall electrical controls and power distribution equipment for a variety of industries.

With RCBI's expertise, the electrical-component manufacturer was recertified.

"In a month's time, RCBI got us back on track," said Darron Nelson, OEM product line manager for Becker/SMC. "It was painful. It was a long month, but they did it."

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RCBI joins Marshall supporters in D.C.

Tom Minnick (left), RCBI's Director of Business & Project Development, explains 3D Printing technology to a Marshall University supporter during the school's annual State of the University event at the Newseum in Washington, D.C. More than 200 people, including members of the state's Congressional delegation, attended the June 18 celebration, which featured a tribute to retiring U.S. Sen. Jay Rockefeller for his support of Marshall and education during his five decades of public service.

Farmers learn to grow business with social media

RCBI is working to educate farmers and other agricultural entrepreneurs on the use of social media to promote and enhance their businesses. In partnership with the Value Chain Cluster (VC2) and the Third District Accelerator (3DA), RCBI is advancing agricultural innovation.

At a session in Spencer, W.Va., pictured above, participants are shown learning principles of social media, and how it can help build business. Next they received hands-on experience in creating and refining a social media presence on Facebook, Instagram, Twitter and other social networking services. More than two dozen agricultural businesses have already
Thanks again for your time and your support of RCBI. As always, don't hesitate to contact us if there's any way we can assist you or your business!

Sincerely,

Charlotte Weber
Director & CEO

What RCBI Does

The Robert C. Byrd Institute for Advanced Flexible Manufacturing (RCBI) encourages job creation, economic development, innovation and entrepreneurship by supporting manufacturing companies of all sizes. We offer cutting-edge equipment use and specialized training for everyone from sole proprietors to Fortune 500 companies.

Simply put, our goal is to use our Advanced Manufacturing Technology Centers across West Virginia to provide the resources that individuals and companies need to create, sustain and expand their businesses. In addition to providing leased use of cutting-edge equipment, workforce development programs, Quality Management Implementation, and customized training, RCBI assists companies in networking and procurement - particularly with federal contracts.

The technologies available at RCBI Advanced Manufacturing Technology Centers in Huntington, Charleston and Bridgeport are among the best in the world, providing companies in the Mid-Atlantic region services that would not otherwise be readily available to them. In particular, RCBI offers Additive Manufacturing (AM) with 3D Printer technology through its Design Works labs, and is a national Center of Excellence for composite materials providing support to NASA engineers as well as first-tier DoD suppliers in West Virginia. These activities help ensure that RCBI fulfills its mission of developing a quality, just-in-time supplier base for the Department of Defense (DoD) as well as other agencies and the commercial sector.