NJIT Opens

The 10,000-sq.-ft. space operates equipment ranging from small 3D printers to large industrial machining centers, such as precision measurement and laser cutting machines.

Makerspace

Partners from government and industry joined the NJIT community in December to celebrate the opening of Makerspace at NJIT, a training-focused, rapid prototyping facility that is central to both the university's hands-on learning mission and its growing relationship with New Jersey's manufacturing community.

The 10,000-sq.-ft. space operates equipment ranging from small 3-D printers to large industrial machining centers, such as precision measurement and laser cutting machines.

Moshe Kam, dean of NJIT's Newark College of Engineering (NCE), said the move from computer simulation in the teaching of engineering to hands-on practice is essential, noting, "It's easy to teach engineering with simulators … but it will only take you so far in becoming a successful practicing engineer."

Through hands-on, project-based learning complemented by training on industrial equipment, development of prototyping skills, and experience with modern manufacturing technology, Makerspace at NJIT will prepare students for leadership and success in the STEM-dependent economy of the 21st century.

PHOTOS: DERIC RAYMOND

Plans to add electronic devices, a wood shop, a paint booth and soldering machines, among other equipment, and to double the space, are underway.

The "industry-relevant" design, prototyping and practice skills that students will pick up in the facility constitute the "hands-on experience employers want to see," observed Robert Cohen '83, '84, '87, vice president and general manager of R&D for Stryker Orthopaedics' reconstructive division, a member of the NJIT Board of Trustees, chair of the NCE Board of Visitors and an enthusiastic backer of the Makerspace.

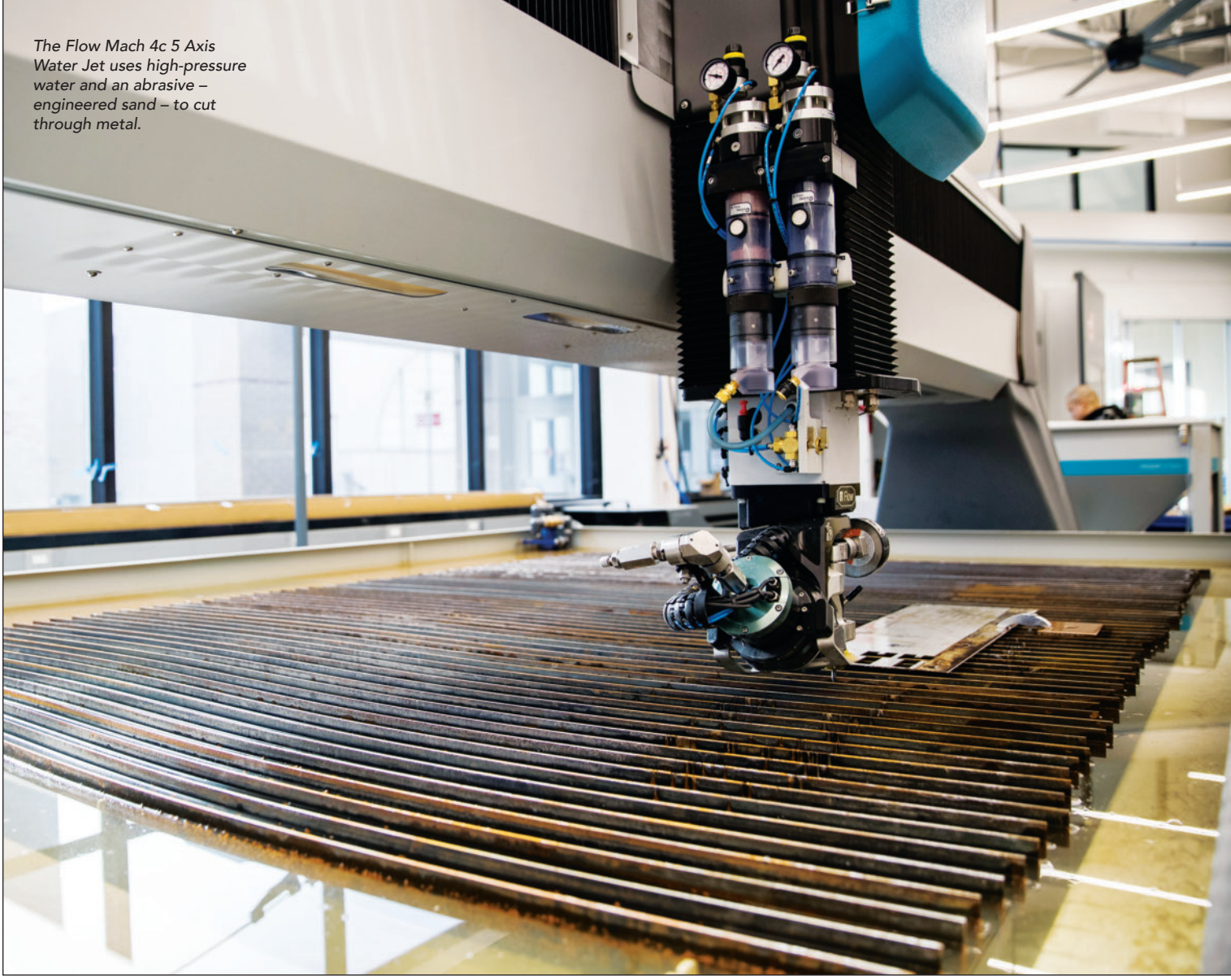
Students eagerly anticipate the edge the facility will provide to the university's competitive teams, such as the Baja SAE club, which experienced a dizzying ascent over the past three years from dormancy to a heady perch in global rankings this year: Number 6.

"I have great confidence and excitement for Baja and the other teams," said Matthew Emmerson '17, past captain of the SAE Baja Team, who received his B.S. degree in mechanical engineering in December.

Christopher Eugenio '19, a mechanical engineering major and the team's incoming captain, demonstrated how quickly a student could create a new part on a Flow machine waterjet, which uses high-pressure water and an abrasive – engineered sand – to cut through metal. He produced the NJIT logo in about 10 minutes.

"We'll be making suspension components, a custom gear box and gears – we'll probably use all of the machines in here. It's going to really help us in the troubleshooting phase when we can fix a part on the fly by printing a new one in a couple of hours. Our sponsors have been wonderful, but the turnaround is

STEM-learning and manufacturing advocates from government and industry joined the NJIT community to celebrate the opening of the university's Makerspace facility. Cutting the ribbon from left (front row): Marjorie A. Perry '05, president and CEO of MZM Construction Co., Inc. and co-executive vice chair of the NJIT Board of Overseers; Senator Ronald L. Rice; Assemblyman Thomas P. Giblin; Fadi P. Deek, provost and senior executive vice president of NJIT; Joel S. Bloom, president of NJIT; Joseph M. Taylor '11 HON and a member of the NJIT Board of Trustees; Senator Teresa Ruiz; and Congressman Donald M. Payne, Jr.



The Flow Mach 4c 5 Axis Water Jet uses high-pressure water and an abrasive – engineered sand – to cut through metal.

"THIS IS A NO-BRAINER TO MAKE AN INVESTMENT IN THE NEXT GENERATION OF LEADERS."

- Senator Teresa Ruiz, assistant majority leader in the New Jersey State Senate

a little longer when you have to send your designs out."

Senator Teresa Ruiz, assistant majority leader in the New Jersey Senate, called the Makerspace a "creative space" likely to entice students to math and science, helping to address what she calls "the gap we're not filling" between unacceptable pockets of unemployment and unmet demand for workers in STEM sectors.

Indeed, Joseph Taylor, former chairman and CEO of Panasonic Corp. of North America and a member of the NJIT Board of Trustees, recalled the scarcity of engineers during a growth period 30 years ago as a "limiting factor" in the company's expansion.

"This is a no-brainer to make an investment in the next generation of leaders," added Ruiz, who chairs the Senate Education Committee and was a supporter of the $10 million allocation from state coffers that helped Makerspace at NJIT become a reality.

NJIT President Joel S. Bloom called the Makerspace a "dual-use facility" that would create a "workforce of the future" while also serving the needs of industry, "particularly manufacturing businesses."

The facility will provide opportunities for industrial partners to participate as mentors, trainers and instructors, for companies to collaborate with students and faculty members on research and development projects, and for employees to receive customized training tailored to their needs.

"This is what this space means to me: a place for hands-on learning that will encourage what we're trying to do in the State of New Jersey – bring manufacturing back to our cities," said State Senator Ronald Rice.

Key features of the NJIT Makerspace will include:

- Product design and prototyping
- Industry standard Computer Aided Design (CAD) and machining software
- Computer Numerical Control machining
- Additive manufacturing (3D printing)
- Metalwork and welding
- Electronics design, assembly and manufacturing
- Industrial metrology (measurement and verification) ■

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