PREEMINENT TEACHER STEM PROGRAM EXPANDS

NYU Polytechnic School of Engineering Targets Teacher Training for a Lasting Impact on New York City Schools

National Science Foundation Grant and Seed Gift from Venture Capitalists
Joanne and Fred Wilson Aim to Help U.S. Lead the World in College Attainment

BROOKLYN, New York—As the New York University Polytechnic School of Engineering this week opens its Summer of STEM, it will announce a major grant from the National Science Foundation (NSF) and a generous gift from noted venture capitalists Fred and Joanne Wilson that will help fulfill the school’s pledge to the White House to educate 500 teachers and positively impact 50,000 public school students throughout New York City in the coming decade.

NYU School of Engineering Dean and President Katepalli R. Sreenivasan made the pledge in December 2014 during the White House College Opportunity Day of Action, when hundreds of higher education leaders joined to support President Obama’s goal of making the United States the world leader in college attainment.

The NYU School of Engineering’s Center for K12 STEM Education already runs one of New York City’s most in-depth teacher professional development programs, and its five-year campaign to raise $10.5 million will significantly expand its initiative to educate and prepare teachers, thereby infusing New York Public Schools with STEM (Science, Technology, Engineering, and Mathematics) expertise.

The announcements will be made this morning, Thursday, July 9, 2015, at an event celebrating the start of the Third Annual Summer of STEM. Hundreds of participants and community leaders will gather at the school in Downtown Brooklyn to hear opening speeches by Sreenivasan, New York City Department of Education Schools Chancellor Carmen Fariña, and Susan Singer, division director of the NSF Division of Undergraduate Education.

- more -
“I am pleased to announce these important partnerships, which will allow the NYU School of Engineering to greatly expand its work on STEM subjects in New York City Public Schools,” Dean Sreenivasan said. “By focusing upon teacher development, we will be able to impact so many more students than we could ever reach directly. President Obama’s goal of leading the world in college attainment is a vital one, and we are proud to expand our contribution in the important STEM fields.”

He announced that a **$2.5 million NSF Discovery Research (DR K-12) grant** will empower NYU to field a team of interdisciplinary experts in robotics, engineering, education, curriculum design, and assessment to make robotics central to and sustainable in the city’s science and math classrooms. The teacher training program will continue year round.

The NYU School of Engineering’s Center for K12 STEM Education also announced the names of the initial public school teachers accepted into the NSF DR K-12 project—the first of 44 teachers from 22 New York City middle schools who will participate in the program, which runs through 2018:


- **Dawn Phillip Ramirez** and **Illana Gagliardi of Park Place Middle School 266** in Brooklyn. Ramirez teaches math, and Gagliardi teaches science. Glenda Esperance is the principal.

“This is an outstanding project building on an innovative, research-based teacher professional development model blending technology, pedagogy, and content knowledge,” said **John Cherniavsky**, senior adviser in NSF’s Division of Research on Learning. “It is particularly innovative in enhancing the teacher professional development necessary for the disciplined use of robotics and engineering in teaching middle-school mathematics and science.”

The **$1 million grant from the Wilsons** seeds a campaign to raise an additional $7 million in philanthropic funding for the NYU School of Engineering’s commitment to equip New York City public school children with the skills to pursue STEM subjects in college. The NYU School of Engineering has a long history of giving students from low-income families, diverse racial backgrounds, and underserved communities access to high-quality STEM education. More than 40 percent of its freshmen this year are the first in their families to attend college, and half receive Pell Grants for low-income families. The school also has a long history of partnering with community organizations and businesses to support pre-college educational initiatives.

The Wilsons’ gift, when supplemented by others, will fund an expansive five-year-long STEM professional development program that will give teachers the opportunity to learn robotics, computer science, cybersecurity, and the school’s integrated STEM curriculum called Science of Smart Cities.

Fred Wilson, a member of the NYU Board of Trustees and also a board member of the Polytechnic School of Engineering, and his wife, Joanne Wilson, stated: “We are pleased to be a part of the NYU Polytechnic School of Engineering effort to support New York City Public School teachers so that they can provide better STEM education to their students. This program will allow these students to consider pursuing STEM fields after graduation.”
Yet another public-private partnership in evidence during the NYU School of Engineering Summer of STEM is NYC Summer STEM 2015. In this major new initiative, the New York City Department of Education selected the NYU School of Engineering’s Center for K12 STEM Education to train 31 teachers along with 53 graduate and undergraduate student-instructors who will ultimately teach 600 middle and high school students courses in robotics and the Science of Smart Cities this summer. The initiative includes funding from public funds and from Microsoft secured through the Fund for Public Schools by a gift from Microsoft Foundation.

“High-quality, hands-on STEM instruction engages our students with technology and the world around them, and gives them the skills they need to thrive inside the classroom and beyond,” said Chancellor Fariña. “I thank NYU Polytech for its commitment to K-12 STEM education for students of all backgrounds and experience levels across our City.”

“The model of college-aged students working alongside K-12 students is demonstrably valuable—the younger students absorb the curriculum better and report a greater sense of confidence,” said NYU Mechanical Engineering Professor Vikram Kapila, who has championed using robotics in pre-college science and math classrooms for teaching and learning. “Moreover, teachers report increased content knowledge and say that the process helps them adapt their lessons.”

In 2003, the NYU Polytechnic School of Engineering became one of the first schools funded by the NSF to develop teachers’ STEM skills through the NSF Research Experience for Teachers Site initiative. Since then, the school has brought more than 100 teachers to campus to work alongside faculty and NYU students. They use kid-friendly robots as tools to teach engineering, math, and science, all the while building an ecosystem of support for STEM unequalled in the country. The teachers learn research skills and engineering; NYU students learn communications skills to make them effective STEM educators and professionals; and the teams develop curriculum and lesson plans to take back to the classrooms. In recent years, NYU added another area of its expertise—entrepreneurship—to the program so that teachers and ultimately their students learn a new way to accelerate their future research into reality.

A related program, funded by NSF GK-12 Fellows grant and philanthropic foundations, sends NYU students to teach and mentor in New York City schools and has demonstrated the efficacy of using robots to engage and teach: 70.8 percent of more than 3,000 students saw their science, math, and overall grades improve by one-half to a full letter grade.

Three years ago, NYU School of Engineering faculty took a similar approach for cybersecurity—another subject area that students find highly engaging. This year, through NSF support, the Summer of STEM will prepare another 10 teachers and 10 college instructors to develop cybersecurity programs in their own schools and institutions.

In addition to the NSF and Fred and Joanne Wilson, the NYU School of Engineering Summer of STEM receives generous support from The After-School Corporation, Alfred P. Sloan Foundation, Consolidated Edison, Walter S. and Lucienne Driskill Foundation, The Fund for Public Schools, Microsoft Corporation, National Grid, National Security Agency, New York City Department of Education, Northrop Grumman Corporation, Pinkerton Foundation, and Xerox Foundation, with Amazon Web Services providing in-kind donations.

For more information on the Summer of STEM, visit http://engineering.nyu.edu/k12stem.
The NYU Polytechnic School of Engineering dates to 1854, when the NYU School of Civil Engineering and Architecture as well as the Brooklyn Collegiate and Polytechnic Institute (widely known as Brooklyn Poly) were founded. Their successor institutions merged in January 2014 to create a comprehensive school of education and research in engineering and applied sciences, rooted in a tradition of invention, innovation and entrepreneurship. In addition to programs at its main campus in downtown Brooklyn, it is closely connected to engineering programs in NYU Abu Dhabi and NYU Shanghai, and it operates business incubators in downtown Manhattan and Brooklyn. For more information, visit http://engineering.nyu.edu.

To download photos of prior teacher experiences, visit http://dam.poly.edu/?c=1428&k=ce97c77a09