

SCHOOLS, PRIVATE SECTOR TACKLE WORKER SHORTFALL SOLUTION KEY TO REGION'S ECONOMIC RECOVERY, SUCCESS

Worcester Public Schools, Higher Ed, Business Work to Further Bay State's Prosperity Focus on Math, Science Career Paths to Drive Economic Innovation

WORCESTER, Mass. – March 10, 2009 – In an effort to address an anticipated shortfall of qualified workers with engineering and scientific backgrounds needed in Massachusetts, Worcester Public Schools announced today a month long series of event to promote middle school awareness of science, technology, engineering and mathematics education.

The school district will partner with the private sector and higher education to host “Worcester Innovation Month,” a series of events in the classroom and community to inspire seventh graders interest in STEM (science, technology, engineering and math) subjects and careers.

Partners from the Worcester Public Schools, higher education institutions and the local business community recognize the need to develop students with STEM skills, as the technical workforce and entrepreneurs who will be essential to Massachusetts’ future innovation, competitiveness and prosperity.

While Massachusetts students have made great strides in science, technology, engineering and mathematics, the statistics show there is still opportunity for improvement:

- According to a recent Information Technology and Innovation Foundation report, the United States ranked sixth in innovation among 40 countries and regions.
- In 2007, only 53% percent of the more than 100,000 Massachusetts students that took the MCAS Science and Technology/Engineering (STE) operational achieved a proficient or higher score.
- In the 2008 Massachusetts SAT student interest survey, only 24.6% of the high school students taking the test indicated interest in STEM-related fields.
- A study by the Extraordinary Women Engineers Project found that while middle school students do not know what they want to pursue for a career, *they know what they do not want to do.*

“By supporting science, technology, engineering and mathematics education in our schools, we will develop and inspire an innovative and talented workforce needed for Massachusetts’ continued competitiveness,” said Tito Jackson, the Commonwealth of Massachusetts’s Industry Director of Information Technology.

Worcester Innovation Month kicks off on Tuesday, March 10, 2009 at South High School in Worcester where students will learn more about the month’s activities from school leaders and members of the acclaimed PBS Design Squad television series. During the month, seventh grade

students in Worcester will participate in a variety of STEM programs in which industry experts share real-world examples about careers in these fields and highlight local STEM-oriented student programs, such as robotics.

These activities are supported by Worcester Public Schools, Abbott Laboratories, EMC Corporation, Intel Corporation, University of Massachusetts Medical School, Central Massachusetts STEM Pipeline Network, Quinsigamond Community College, Worcester Polytechnic Institute, EcoTarium and Colleges of Worcester Consortium.

“It is paramount that our students understand the interrelationship and use of science, technology, engineering and mathematics as a critical skill set required in today’s competitive global marketplace,” said Dr. Deirdre Loughlin, Interim Superintendent of the Worcester Public Schools. “Mastery and understanding of these skills will significantly contribute to our students’ success in accessing higher education and professional careers in a variety of demanding fields.

During Worcester Innovation Month, students have opportunities to explore several science, technology, engineering, and mathematics-related events. They will also learn from experts in business and industry about the exciting careers in this increasingly competitive technological and information-dependent world.”

The calendar of Worcester Innovation Month events includes:

Week of March 9, 2009

Design Squad, the PBS show produced by WGBH-TV, is one of the few places on TV where students can learn about how engineering impacts our daily lives. Worcester students will see clips from the show, hear about the importance of math and science from Design Squad cast members, and meet a local student who won a Design Squad “Trash to Treasure” competition. For more information, visit: <http://pbskids.org/designsquad/special/contest/winner.html> and <http://www.youtube.com/watch?v=oJAaMQuEF18>

Week of March 16, 2009

Innovation experts from local businesses will offer students a sneak peek into science, technology, engineering and mathematics careers.

March 21, 2009

Worcester students will be competing in the VEX Robotics Competition New England Championship at Quinsigamond Community College.

March 21, 2009

More than 150 Worcester female middle school students will attend the 13th Annual *Women in Science* Conference sponsored by the Regional Science Resource Center at the University of Massachusetts Medical School and the EcoTarium. The goal of the conference is introduce 150 Worcester middle school young women to careers in science and local women who use science in their professions.

Week of March 23, 2009

Worcester Public Schools regularly participates in robotics programs, such as FIRST Robotics, Vex Robotics and Lego Robotics, which use math, science and engineering skills. Students will have the opportunity to learn about and attend feature programs on the robotics programs at their local high schools.

March 28, 2009

Students from Worcester middle school will attend the first annual *Men in STEM* Conference sponsored by the EcoTarium and Intel. The goal of the conference is to introduce Worcester middle school young men to careers in science and local men who use science in their professions.

For more information on Worcester Innovation Month, please visit:
www.umassmed.edu/rsrc/innovation.aspx.

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Andrew Halloran

College: Worcester Polytechnic Institute

Area of study: Computer Science

Job title: EMC Software Engineer

In the most general of terms, Andrew is part of a team of engineers who write the software that configures EMC's large storage system disk arrays. These are used for companies that need to save large amounts of data.

From a young age, Andrew was fascinated with taking things apart and solving problems. When he was a teenager the flipper on his family's pinball machine broke; Andrew took it apart, found out why it was malfunctioning and rebuilt the flipper using spare parts he found in family basement.

He applied this passion for discovery in school by participating in a high school science fair, where he identified a real world problem, developed a hypothesis and designed an experiment in an attempt to solve it and prove his hypothesis.

Over the course of his high school experience, Andrew participated in three science fairs and received one honorable mention. His projects included studying the speed of a computer microprocessor and researching the chemicals that strengthen ice.

As an engineer at EMC in Hopkinton, Andrew has made a career by continuing to follow his passion for taking things apart and using the scientific method to solve real world problems.

Catherine Mitchell

College: Vanderbilt University

Area of study: Computer Science & Mathematics

Job title: EMC Director, Customer Programs, Engineering

Originally, Catherine wanted to be a teacher and went to college to become an Elementary Education teacher. However, after a year of classes for this degree, she decided to try a computer science class for fun and really loved the class. She realized there would be more choices for jobs, with better pay, if she continued with Computer Science, so she switched her major.

Despite being the only woman in most of the computer science classes, such as programming and circuitry design, she recognized that her knowledge of the technology, as well as her demonstrable ability to communicate and interact interpersonally would be tremendous assets in this industry.

Additionally, while in college, Catherine also was in the ROTC work study program to help pay her tuition. Although she never joined the service herself, her work study job enabled her to see technology at use in the real world because ROTC used computers daily to train recruits and plan basic training activities.

Catherine uses both her engineering and "people" skills now to facilitate ongoing teams of customers and engineers working together to build computer storage products.

Mohammed “Saif” Saifullah

College: University of Karachi, Pakistan; Charter Oak State College, CT; Brandeis University, MA

Note: Currently working on his Ph. D. at NOVA Southern University in Florida

Areas of study: Mathematics & Statistics, Information Systems, Software Engineering

Job title: EMC Principal Software Engineer

Saif’s job is to design software tools to test drive EMC’s flagship product, Symmetrix, by simulating data overload and security attack scenarios in a way that reflects how customers would use the data storage system in a real world setting.

Using his interest and skills in mathematics and statistics, Saif develops simulation software tools that enable engineers, using minimal human intervention, to less expensively develop data storage products.

Although he studied mathematics in college Saif became a chemist when he graduated because of that profession’s job security. Saif’s manager and mentor recognized his mathematical and analytical skills and encouraged him to pursue a career in computers to use his passion and expertise.

“It’s like a video game,” said Saif. “You aim for a target and keep pushing yourself to develop a needed algorithm or to solve a problem. It may take days, but when you hit that target, it is a tremendous feeling of achievement.”

Colleen McKiernan, PhD

College: Wesleyan University; University of Vermont

Area of study: Molecular Biology and Biochemistry

Job title: Patent Agent

Colleen McKiernan has combined her early interest in molecular biological research with a career in biosciences intellectual property.

Colleen’s interest in research started the summer after she graduated high school when she began working in a University of Massachusetts Medical Center laboratory studying the cloning of a neuropeptide. During the summers of her undergraduate studies Colleen continued to do molecular biology research work related to proteins.

Colleen’s graduate work focused on the neurotransmission of proteins which expanded to an interest in intracellular protein targeting. This research took her to the Scripps Research Institute in La Jolla, California where she received a National Institutes of Health Fellowship to support her post-doctoral work on the targeting of proteins in retinal rod cells. The more Colleen learned about different fields of biology, the more interested she became in other areas of biology.

Eventually Colleen transitioned away from laboratory research to begin a career in intellectual property law and after a succession of IP related positions is now working in the Intellectual Property group at the law firm of Edwards Angell Palmer & Dodge LLP in the Boston office. She hopes to never attend law school.

Deborah Harmon Hines, PhD

College: LeMoyne-Owen College, University of Tennessee

Area of study: Molecular Biology and Biochemistry

Job title: Professor of Cell Biology, Vice Provost of School Services

University of Massachusetts Medical School

Dr. Hines is passionate about *justice*, *access* and *education* issues in every aspect of her life. She has been an animated keynote speaker at the Women in Science Conferences and will return again this year as the keynote.

Dr. Hines is a Professor of Cell Biology and Vice Provost for School Services at the University of Massachusetts Medical School (UMMS) in Worcester. In her position at UMMS she teaches medical students anatomy and physiology. Throughout all her work, she strives to provide educational opportunities and experience for all students.

She is very active in the life and governance of the Episcopal Church and serves on numerous community and corporate boards. In her spare time, Dr. Hines enjoys traveling, sewing, reading, writing, dancing and making music.

Marcus Kennedy

College: Florida State University

Area of Study: Industrial Engineering and Management

Job Title: Intel Functional Area Industrial Engineer

Marcus loves making sense out of numbers and he's had a lifelong curiosity about science. The result is that math and science have played a big role in his life – from his childhood to his professional career path.

When Marcus was in high school he entered science fairs with projects that looked at the effect of greenhouses and lights on plant growth, and took new approaches to structural bridge design. This was an opportunity to learn the scientific method of research, which Marcus still uses in his day to day work.

At Intel Marcus focuses on applying mathematical principles in experiments to optimize the speed and efficiency of the machines that make Intel's microprocessor. The demand for computing power continues to grow around the world and Marcus uses math and science to squeeze as much as possible out of Intel's computer chips.