Welcome to the first issue of the Engineering Our Future NJ newsletter! EOFNJ is a partnership of schools, institutions of higher education, corporations, the NJ Department of Education, and other organizations dedicated to promoting K-12 engineering education in our state. Our goal is to strengthen the NJ Core Curriculum Content Standards to ensure that all elementary, middle, and high school students experience engineering, with a focus on innovation, as an integral part of their K-12 education. In this monthly newsletter, we aim to highlight some of the many excellent programs, curricula, and partners involved in K-12 engineering education in New Jersey.

Please visit our new web site—www.stevens.edu/ciese/eofnj—to get more details about some of the professional development opportunities available at no or nominal cost to schools, and to learn more about a statewide conference we are planning in partnership with the NJ Principals and Supervisors Association for school leaders on May 11, 2007, featuring Commissioner of Education Lucille Davy (invited), Museum of Science, Boston President Ioannis Miaoulis, and presentations of exemplary K-12 engineering programs currently being implemented all across the state. Also, check back next month for details about a new program called Engineering Externships with Educators that will partner middle and high school teachers with high tech companies and other engineering-rich organizations for curriculum development and technical sharing.

We need you! Please tell us what you’re doing with engineering education in the classroom so future newsletters can highlight your success stories, implementation models, and evidence of student impact. Contributions should be emailed to: eofnj@stevens.edu.

Learn more about the Engineering Our Future NJ initiative and great K-12 engineering curricula at: www.stevens.edu/ciese/eofnj
EOFNJ Pilot Study Findings
Found To Have Positive Impact on Learning

A major goal of the EOFNJ initiative has been to gather evidence of the impact on students and teachers of K-12 engineering curriculum. In 2005, Stevens launched a pilot program aimed at measuring the impact on student learning of specific engineering and technology topics and skills and of related science topics. Further, the study assessed teacher preparedness and classroom implementation issues related to the integration of engineering in elementary, middle and high school classes. From more than 70 applications, we selected an academically, geographically, and socio-economically diverse group of 35 teachers from 32 New Jersey school, representing 1,000 students.

External evaluations reflect a positive impact on student learning and interest in science, technology, engineering and mathematics (STEM) for a range of students, from gifted and talented to those specially educated. For more specific information on the findings, please view the evaluation reports at: www.stevens.edu/ciese/eofnj.

Classroom Spotlight: Wallace School, Hoboken

Engineering is Elementary (EiE) Module: Water, Water Everywhere Environmental Engineering: Designing Water Filters

The third grade students at Wallace School in Hoboken planned, created and tested their own designs for water filters. The photograph shows the students in Virginia Wingert's science class working on the activity "Exploring Water Filtration." The students tested and compared various filter materials using different kinds of non-toxic water.

Mrs. Wingert and Bess Mitsakos, also a science teacher at Wallace School, were participants in the 2005-2006 EOFNJ pilot study. “The unit aligned very well with our science curriculum, and gave the students experience with hands-on design and problem-solving,” said Mitsakos. If you are interested in EiE curriculum see our workshop schedule below.

School Spotlight: Quibbletown School, Piscataway

Piscataway, which participated in the EOFNJ pilot program in 2006, is the first district to adopt the EOFNJ middle school curriculum, A World In Motion (AWIM), as part of their core curriculum. And the eighth grade students are embracing it! According to one of the teachers, Ed Cohen, "The module fills a needed niche that really brings out students' previously un-tapped engineering talents."

For example, engaging in activities such as designing cars, actually riding a bicycle, and studying the concept of compound ratios, students are learning how to create more power from their gears. The students, who are of mixed abilities, engage in the program. If you are interested in the AWIM curriculum, see our workshop schedule below.

“...(T)he difference between success and failure for workers of 21st century America: creativity and innovation…”
-National Center on Education and the Economy, 2007
In this lesson elementary students will solve the problem: How can we house ants in a structure where we will be able to observe/study them? Students will use the Engineering Design Process to create a suitable container/habitat for keeping and observing ants for one day. This engineering project was designed as a companion to CIESE award-winning science telecollaborative project, The Square of Life. 

www.stevens.edu/ciese/curriculum/squareproj/engineering_ants.htm

“85% of U.S. economic growth is due to technological innovation.”
(Rising Above the Gathering Storm, 2005)

**NEW EOFNJ Curriculum**

**Ant Day Care Center**

In this lesson elementary students will solve the problem: How can we house ants in a structure where we will be able to observe/study them? Students will use the Engineering Design Process to create a suitable container/habitat for keeping and observing ants for one day. This engineering project was designed as a companion to CIESE award-winning science telecollaborative project, The Square of Life.

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**ENGINEERING OUR FUTURE NJ CONFERENCE – MAY 11, 2007**

Who: K-12 Principals & Supervisors

When: Friday, May 11, 2007 from 9:00 AM - 2:00 PM

Where: Stevens Institute of Technology- Hoboken, NJ

Why: To share a vision of the technological competencies needed by citizens and workers in the 21st century; present research on student impact of K-12 engineering programs; provide an orientation to exemplary K-12 engineering curriculum resources; showcase best practices and strategies for integration of engineering/technology into existing curricula; and link K-12 engineering efforts to New Jersey's policy and plans for STEM education and workforce development.

Registration Deadline: April 13, 2007  Space is LIMITED!

To see the tentative agenda and to register visit: www.stevens.edu/ciese.eofnj.

**Calling ALL Colleges! EOFNJ Mini-Grants**

Mini-grants of up to $5,000 are available for institutions of higher education (colleges of teacher education, engineering institutions, and community colleges) to provide training for elementary, middle and/or high school teachers, pre-service teachers, and/or alternate route teachers to prepare them to implement exemplary engineering curricula in their classroom. The applications are due February 28, 2007. For more information and to apply, visit: www.stevens.edu/ciese/eofnj.

**Still Space Available! BUILD IT!**

A few slots remain for teams of two teachers from grades 7-12 to participate in a $1.2 million NSF-sponsored Engineering and Information Technology program—BUILD IT!

BUILD IT! is an innovative student design challenge that fosters an active, inquiry-based and challenging learning environment that integrates the application of many IT, scientific, and engineering principles. The goal of the BUILD IT! project is to challenge students to design, build and program an underwater remotely and autonomously operated vehicle from LEGO and other parts. For more information, please visit: www.stevens.edu/ciese/buildit.

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NEW Spring Workshops

February 28, 2007
Grades 3-5: Engineering is Elementary: Catching the Wind & An Alarming Idea

May 1, 2007
Grades 6-8: Designing Toys From Concept to Prototype: Students Applying Science and Mathematics in Creative and Technological Challenges

March 2, 2007
Grades 3-5: Engineering is Elementary: Catching the Wind & Water, Water Everywhere

March 26 & May 17, 2007
Grades 9-12: Engineering The Future: Overview of a Full-Year Pre-Engineering/Technology Education Program

May 23, 2007
Grades 6-8: EOFNJ Middle School Workshop: Design Gliders from Concept to Prototype

To register visit:
www.stevens.edu/ciese/spring2007.html

Engineers Week 2007

Celebrate Engineering!- February 18-24

E-week is dedicated to ensuring a diverse and well-educated future engineering workforce. If you’d like to participate in raising public understanding and appreciation of engineers, visit: www.eweek.org.

“Once my students learned the engineering design model, they began to apply it to different subjects and projects. The parents loved the project as well.”
- Elementary Teacher, Piscataway, NJ