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News Service

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US EPA and Connecticut DEP grant total of \$185,000 to Center for Innovation in Engineering and Science Education

Curriculum development grants spotlight K-12 environmental science projects

HOBOKEN, N.J. — The Center for Innovation in Engineering and Science Education (CIESE) at Stevens Institute of Technology is the recipient of two major curriculum development grants from the US Environmental Protection Agency (EPA) and the Connecticut State Department of Environmental Protection (CTDEP), totaling \$185,000. One grant will fund a middle- and high-school curriculum project concerned with the tracking and analysis of particulate pollutants in the air we breathe; the other supports development of a teacher-training program that aims to integrate air-quality analysis into the science curriculum for Grades 6–8.

In a related development, CIESE Director Beth McGrath announced that one of the chief developers of Internet curriculum materials and a central figure in obtaining the two grants, Ms. Liesl Hotaling, has been promoted to the position of Assistant Director of CIESE. Hotaling had worked at CIESE previously as Internet Training Specialist, in which capacity she designed and implemented many of the internationally known Internet-based education projects for which CIESE has won numerous awards.

Implementing the two major grants, CIESE will develop Internet-based curriculum materials for middle and high school science education on the topic of particulate matter. The curriculum, titled "Particulates Matter," will enhance awareness of current environmental health hazards posed by fine particle pollution through integration of the EPA's new particulate real time data source. This curriculum will involve the collection, recording and analysis of real time particulate matter data to engage students in authentic "real world" scientific investigations into issues related to particulate matter pollution. Unlike traditional textbook lessons, these inquiry based science materials place student learning in the context of real events. As a result, teachers, students, parents and other educational stakeholders will learn about PM and its health effects. Through these materials, students will learn to think critically, and enhance problem solving and decision making skills. Please visit <http://www.k12science.org/curriculum/airproj/>

Building on the success of a previous project for the CTDEP (the "Is Your Bus Exhausting?" air-quality curriculum), CIESE will create a hybrid teacher professional development program (including online and face-to-face training) designed to assist New Haven and Bridgeport teachers with the integration of the air quality curriculum into their classrooms.

The curriculum is designed to lead students incrementally, Grades 6 - 8, through Internet-based and hands-on learning experiments to discover not only the science behind air quality, but also the health implications related to poor air quality exposure.

The theme established for each grade level integrates air pollution topics with the science curricula currently taught in schools. The activities in each theme increase in complexity to match student ability levels ranging through Grades 6–8.

The types of student inquiry activities vary from Internet-based, to laboratory, culminating in student driven learning through the creation of a scientific investigation. Each grade level unit will take approximately 2–2.5 weeks to implement, and can be used to address many of the Connecticut Framework–Middle School Science Standards.

As part of the new project, CIESE will develop and conduct the asynchronous sessions and well as the face to face training sessions and provide the support necessary for the integration of a real-time data project in a typical K-12 classroom. The curriculum and professional development materials will accompany the clean school bus technology being employed by the school districts as part of the EPA's Clean School Bus initiative.

For more information, please visit <http://www.k12science.org/curriculum/norwich/>

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