

ASME ITLA Paper

Project Description:

EDUCATION CONNECTION is a Connecticut Regional Education Service Center, located in Litchfield Connecticut. In collaboration with two urban districts, (Danbury & Waterbury), one community college (NVCC) and 9 suburban districts (Bethel, Brookfield, New Fairfield, New Milford, Newtown, Plymouth, Regional School District #15, Thomaston and Torrington,) Technology Specialist Michael Mino has developed and implemented the Information Technology (IT) Leadership Academy: A Program to Prepare Students for Leadership Opportunities in the Information Technology Industry. The IT Leadership Academy is funded through a grant from the Connecticut State Department of Education Inter-District Grant Program with a major focus on increasing educational opportunity and the interaction/collaboration of urban and suburban participants of diverse racial, cultural and socio-economic backgrounds.

The Information Technology Leadership Academy is designed to develop student academic, research, engineering design and leadership skills. Students also gain knowledge and experience in IT industry careers through the completion of a comprehensive Information Communication Technology (ICT) Research and Design (R&D) project. The comprehensive, standards based, design under constraint project, includes patent research and development, technical writing, computer assisted drawing and design, computer animation, digital audio/video, digital photography and website development. Throughout the school year long R&D project, students learn about communication networks, telecommunications services and hand-held communication devices. They also develop a mock technology company and assume positions in the company to complete their R&D project. During monthly meetings at Naugatuck Valley Community College students attend technical seminars presented by IT professionals, community college professors and high school teachers. Students and teachers from the participating schools also interact with each other and IT industry professionals via an Internet portal that provides chat, email, discussion boards, file sharing and distribution of instructional materials to all participants.

The culminating experience for all IT Leadership Academy participants is the public presentation of the student work at the IT Leadership Academy Exposition at the Brass Mill Center Mall in Waterbury, Connecticut. This six-hour event takes place on a busy Saturday shopping day in the main court of Brass Mill Center Mall. During the event each student group presents their R&D project to a panel of IT professionals with the use of a laptop computer and projection system. The judging panel uses rubric assessment to score each of the project teams on everything from creativity and technical feasibility to presentation design and public speaking. Individual project displays at tables in the courtyard also provide the opportunity for students to share their projects in an informal manner with the judges and the public. Members of the respective communities celebrate their students' achievements in the program as the students demonstrate all of the elements of the IT Leadership Academy including communication, creativity, collaborative and technical skills within the context of the IT Research and Development project.

Project Goals: As a result of participation in the IT Leadership Academy:

- Students will learn about IT networks, devices and services through the completion of a comprehensive Research and Design project.
- Students will develop and apply creative thinking, engineering design and problem solving skills through the completion of a comprehensive IT Research and Design project.
- Students will learn about IT careers as they assume positions in a "Mock" technology company to complete a comprehensive IT Research and Design project.

- Students will utilize the Internet and the WWW to access and retrieve information and to complete research in the area of copyright, trademarks, patents and intellectual property rights.
- Students will increase their knowledge and understanding about the importance of “diversity” to creativity, innovation and success in the IT industry.

Timeline:

June: Recruit teacher participants for fall school year, research potential technical topics
 August: Provide at least 2 Days of professional development for all teacher participants regarding the IT R&D curriculum materials, IT Design Challenge and Internet resources.
 September: 1st Student Meeting, Provide Ice-Breaker Activities for student teams. Introduce Design Challenge.
 October: Student Meeting, Focus on Creative Thinking & Problem Solving
 November: Student Meeting, Focus on Challenge #1 components, company identity, slogan..
 December: Student Meeting, Focus on Technical topic related to design challenge
 January: Student Meeting, Focus on Technical topic related to design challenge and Challenge #2 components.
 February: Focus on Technical topic related to design challenge and Challenge #3 components.
 March: Focus on Technical topic related to design challenge and preparation for final expo.
 April: Student Meeting Focus on preparation for final expo, IT Academy Expo of Student Work
 May: Field Trip, IBM Research Lab, Hawthorne, NY

Alignment to Standards: SEE ITLA Standards Document

Equipment Required:

Multimedia/Network Enabled Computer
 LCD Projector
 Internet Access

Software Required:

WWW Development Software: Macromedia Dreamweaver Studio MX
 CAD Software: Solid Works or comparable
 Video Editing Software: Apple Final Cut Express, Apple iMovie

Modeling Materials: May include but not limited to:

Modeling Clay	Foam Core Board	Cardboard
Plastic Sheet Material	Model Paint	Other Modeling Materials

Presentation Materials: May include but not limited to:

Display Board	Presentation Binders	Business Card Stock
Brochure Stock	CDR Disks	

Duration of Project: The IT Leadership Academy program occurs from September to May during the typical 180-day school year. This program or instructional model can be adapted to occur either as either a 1 semester or a 2 semester high school course.

Lesson Plans: See attached Curriculum Document for sample Lesson Plans.

Hand-outs: The following instructional materials have been provided as PDF documents.

IT R&D Curriculum Document
 IT R&D Design Challenge Brief

IT R&D Design Project Guide
IT R&D WWW Resources

Project Results (benefits to the students, awards, and recognitions)

The IT Leadership Academy is an award winning program that has been honored by the **Congressional Black Caucus Educational Braintrust** and the **Computerworld Honors Program** as a visionary program that uses information technology to benefit society. In addition, the **Connecticut Governors Office for Workforce Competitiveness** has selected the IT Leadership Academy as a pilot site for the development of IT curriculum for Connecticut High Schools.

Contact: For More Information,

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Photo Gallery:

Photos can also be found at: <http://www.itacademy.org>
Photo Gallery is attached as a zip file.