

42nd NAWI Annual Conference – 2007

Chicago, Illinois

Career and Technical Education: Capitalizing on Emerging Technologies
Allerton Crowne Plaza Hotel
April 25-27, 2007

Conference Program

TUESDAY, April 24, 2007

4:00 p.m. NAWI Board Meeting (Frank Lloyd Wright); Amy McCaskill, NAWI President

WEDNESDAY, April 25, 2007

7:30 a.m. Continental Breakfast (Renaissance Pre-Function)

8:30-8:30 a.m. General Session I (Renaissance South)

NAWI Greetings

Amy McCaskill, NAWI President
Education Associate, Office of Career and Technology Education
South Carolina Department of Education

Welcome to Illinois

Mark Williams, State Director, Career and Technical Education
Illinois Department of Education

Conference Overview

Doug Webster, NAWI Vice President
Industry Skill Standards Coordinator
Vermont Department of Education

Utilizing Business Pathways and Emerging Technologies to Create the Knowledge Worker

Bob Sheets, Director, Research and Development
Business and Industry Services
University of Illinois at Urbana-Champaign

Leading businesses are competing on innovation, and states are promoting innovation-based economic development. Find out how CTE uses pathways and problem-based learning to help students become

entrepreneurs who drive innovation and improve critical business processes.

9:30-10:30 a.m. Breakout Sessions I

Planning a Biotech Pathway (Renaissance South)

Kathy Turner, Health Science Consultant
North Carolina Department of Public Instruction

North Carolina has the third largest concentration of biotechnology companies in the country. Due to the tremendous growth, the NC Department of Public Instruction and Career and Technical Education have partnered with the biotechnology industry to develop opportunities for students to learn more about and develop an interest in biotechnology. Participants will receive information about curricular products and student guides, as well as review plans for future course development. Never before have CTE students had more options and opportunities!

Renewable Energy Training at Upper Cape Tech:

Establishing Hands-On Programs (Renaissance North)

Leo Bedard, Construction Occupations Supervisor
Upper Cade Cod Regional Tech School, Bourne, Massachusetts

Upper Cape Tech, in collaboration with Cape Cod Community College and with National Science Foundation funding, has implemented innovative interdisciplinary classroom and lab activities that educate students in the installation of renewable energy systems. Students are provided with real world projects that allow contextual learning and promote workplace readiness. Attendees will learn where to look for funding opportunities in their states to pay for equipment and staff development. They will also learn how to utilize existing facilities to house these initiatives.

10:30-10:45 Break

10:45-11:45 a.m. Breakout Sessions II

Using Problem-based Scenarios to Increase the Math and Science Content in Career Technical Education Programs (Renaissance South)

Frances Beauman, PhD, Project Coordinator
Illinois Math, Science and Industrial Project Technology Project
Southern Illinois University

Vinay Mullick, Instructor
Paul Robeson High School, Chicago
Kurt Wolter, Technology Teacher
Rochelle Township High School, Rochelle, Illinois

Learn how CTE can be a part of national Science Technology Engineering and Mathematics (STEM) initiative. Hear how schools are expanding high school programs to increase math and science in Career Technology Education programs. Find out how this Illinois initiative is promoting economic development that benefits students, instructors, business partners, and schools by implementing problem-based scenarios rich in math and science. Learn about strategies and best practices school districts have used and receive copies of curriculum materials.

Partnerships in PTEC...Powerful Results! (Renaissance North)

Joanna Perkins
Center for the Advancement of Process Technology
Texas City, Texas
Evette Torres, Workforce Development
Shell Oil Company

The presentation will focus on partnerships among education, industry, and NSF Advanced Technological Center of Excellence, Tech Prep and other nonprofit institutions with an interest in a qualified, well-trained workforce. These partnerships provide activities that reach out to universities, spreading the message from the energy industry that math and science skills are a must in the world of work. All involved share a common goal of developing a qualified, skillful and diverse workforce. The active, visible industry support provided in the partnership activities strengthens this message to students as it gains attention from parents.

Next Generation Manufacturing in the U.S.! (Mies Van Der Rohe)

Karen Birch, State Director
College of Technology, Connecticut Community Colleges
Mary deManbey, Program Manager
Connecticut Business and Industry Association

The Connecticut Community Colleges, College of Technology has a National Science Foundation-funded Regional Center for Next Generation Manufacturing (RCNGM), which has implemented a successful marketing campaign targeting high school students, teachers, and career counselors. The presentation will focus on how the RCNGM was able to work with the CT Business and Industry Association to develop a career

DVD, a “Manufacture Your Future” symposium that was attended by more than 3,500 students, and other marketing tools such as our Web site, pop-ups, and a TV commercial. All participants will receive our DVD with teacher guides. The DVD includes five profiles of technicians and engineers working in next generation manufacturing companies, as well as sections on career pathways available through the CT Community Colleges College of Technology.

12:00-1:00 p.m. Lunch (Taps On Two)

1:15-2:30 p.m. Breakout Sessions III

The Virtual Surgery Project: Students Get Up Close and Personal with the Surgical Team! (Renaissance South)

Nancy H. Allen, Education Associate

Health Science Technology, South Carolina Department of Education

The Virtual Surgery Insider Project was created by the South Carolina Hospital Association in partnership with the South Carolina Department of Education to introduce high school students to careers in health care using real-time technology to link health science classrooms to the real world of hospitals. Through this unique career awareness program, students participate in actual surgeries telecast live to their classrooms, during which they can ask questions of the surgeon and his or her team. Engaging students through technology allows hospitals to bring more students into their environment with minimal interruption to the hospital and the school day.

Knowledge Workers: The Critical Role of Ethics in Tomorrow's Workforce (Renaissance North)

Harvey Crone, CAPER Coordinator

Anne Mustian, Tech Prep Specialist

J. Sargeant Reynolds Community College, Richmond, Virginia

To become “knowledge workers,” current secondary and postsecondary students must learn basic ethical workplace behaviors. In today’s emerging workforce, business and industry human resource leadership seeks workers who possess good, solid work ethics. This session will provide participants techniques on how to conduct a Business-Industry Ethics Forum for students that highlights the interaction of student leaders and business-industry partners., ethical decision-making that is critical to the success of workers in today’s emerging technologies, preparation of students for career success and for transition from secondary/postsecondary education into the workforce, and the

development of plans to promote ethical leadership in collaboration with education and business-industry partners.

2:30-2:45 p.m. Break

2:45-4:00 p.m. Breakout Sessions IV

A Model Project for Making Industry Meaningful in School (Renaissance South)

Dorene Perez, Program Director
Computer Aided Design/Computer Aided Engineering
Jim Gibson, Program Director of Electronics
Rose Marie Lynch, Communications Instructor
Illinois Valley Community College

A multidisciplinary project titled Making Industry Meaningful in College (MIMIC) at Illinois Valley Community College places students in engineering design, electronics, and business into student “companies” to design, manufacture, market, and sell products. The project, supported by a National Science Foundation grant, emphasizes teamwork, critical thinking, problem solving, and communication skills. Learn how to adapt the cost effective MIMIC model to various disciplines and education levels and to organize and assess similar projects.

**Incorporating Emerging Technologies in CTE Classrooms:
A Project-based Approach** (Renaissance North)

Joe Ferrari, UFT Teacher Center Staff
Automotive High School, Astoria, New York
Teri De Stefano, CTE Liaison, New York City Department of Education
Tom Cassino, CTE Instructor, Automotive High School
Judy Napoli, CTE Liaison, New York City Department of Education

This session will demonstrate the use of real world problem solving to create rich learning experiences for students. Participants will gain an understanding of specific strategies and tools to help incorporate both project-based learning and emerging green technologies in an effort to facilitate CTE-academic integration and collaboration. Attendees will learn about Automotive High School’s waste vegetable oil vehicle, the “Grease Car” that has been the feature of several television feature stories.

5:00 p.m. Reception sponsored by VTECS and Career Communications, Inc.
(Renaissance North)

THURSDAY, April 26, 2007

7:30-8:30 a.m. Continental Breakfast (Renaissance Pre-Function)

8:30-10:15 a.m. General Session II (Renaissance South)

Taking a Look at the Future

Michelle Bowman, Managing Director, Global Foresight Associates, Inc.
Waltham, Massachusetts

People who have worked with futurist Michelle Bowman say, "If Michelle has an 'off' button, we haven't found it yet." An undercurrent of high-octane energy infuses everything she does. Her work focuses on helping organizations understand the strategic implications of trends and emerging issues affecting the future of business and society. Her ideas and expertise help organizations innovate existing products, identify new areas and markets for growth, and create strategic maps of the future. Ms. Bowman is working with the Massachusetts Career/Vocational Technical Education Professional Development Center in its quest to create approaches to learning that will help students be prepared for the future.

Nano-Micro Technology Integration in Education

Deb Newberry, MnNANO Project Director and Nanoscience Technology Instructor
Dakota County Technical College, Rosemont, Minnesota
Co-author, *The Next Big Thing Is Really Small: How Nanotechnology Will Change the Future of Your Business*

After spending 23 years in the corporate world as a nuclear physicist and executive manager, Deb Newberry switched gears and entered the world of education. She began the Nanoscience Technology program and created eight of the nano-related courses required for the two-year Nanoscience Technician degree at Dakota Technical College.

10:30-11:30 a.m. Breakout Sessions V

Comprehensive Engineering Design Education in Support of a Knowledge-Based Economy (Renaissance North)

Mileta Tomovic
Craig Miller

Cynthia Tomovic
Purdue University

Many societies are going through a transition from traditional manufacturing economies to knowledge-based economies, where people will need to acquire new technological skills, develop the ability to innovate, and solve problems in a complex environment. Midwest Coalition for Comprehensive Engineering Design Education, sponsored by NSF ATE program, is one of the venues that intends to develop such skills in the two- and four-year college population. The program intends to develop integrated curriculum, focused on the holistic approach to product concept tools and technology enabled by a digital collaborative environment, with the goal to improve competitiveness through the effective sharing and use of information.

Nano-Micro Technology in the 21st Century

Deb Newberry, Dakota County Technical College, Rosemount Minnesota

Deb Newberry will lead a discussion on the impact small technology will have on materials, products, and commerce and how educators will incorporate nanotechnology applications in curriculum in various disciplines. Examples of how nanotechnology is being used to improve our lives, preserve our natural resources, affect climate change, and get students excited about science and technology will be discussed.

11:30-12:45 Lunch Buffet (Renaissance)

1:00 p.m. Buses Depart for Business-Industry Tours (choose one)

Return to Allerton 4:30-5:00 p.m.

TOUR 1

Rush University Medical Center

Rush University Medical Center is an academic medical center that offers specialty and subspecialty programs of distinction. It is a thriving center for basic and clinical research, with physicians and scientists involved in hundreds of research projects developing and testing the effectiveness and safety of new therapies and medical devices. The tour will showcase two of Rush's outstanding centers. Rush University Simulation Laboratory (RUSL) is a new concept-teaching center that offers clinical simulation education. During the exercises, participants render treatment to a patient simulator that replicates a myriad of signs, symptoms and conditions. Their activity is filmed and projected into the classroom for others to view. The second stop on the tour is the Cardiac Catheterization Unit. Participants will visit where cutting edge cardiac treatments take

place. Rush is one of the top cardiovascular hospitals in the country, according to the Solucient 100 Top Hospitals®: Cardiovascular Benchmarks for Success study. The tour will conclude with a brief overview on trends in healthcare.

Chicago Technology Park (CTP) Research Center

Mich Hein, Chief of Staff of the Illinois Medical District. one of the largest urban healthcare, educational, research, and technology districts in the nation, will brief the group on the Chicago Technology Park (CTP), whose goal is to supply fully equipped infrastructure, university resources, internship programs, and custom designed business development services to biotech start-ups. Mr. Hein will talk about growth and development of the Tech Park, and he will also invite the group to tour CTP's incubator, the Research Center, so they can see what services are available to the companies and in which conditions they work. Learn about BiTmap, a bioinformatics training program, and the Summer Biotech Institute, an internship program for high school students. David Miller, president and CEO of iBIO, will give bio-pharma update.

TOUR 2

Argonne National Laboratory

The first national laboratory, Argonne is one of the nation's leading centers of federally funded research and development. Managed by the UChicago Argonne, LLC, Argonne's mission is to conduct R&D in the national interest in support of the U.S. Department of Energy. Participants will visit the Argonne Information Center (AIC), which is filled with more than 30 exhibits about science and technology and Argonne's current research programs. Learn about the Advanced Photon Source (APS), which produces x-ray beams of unprecedented brilliance, providing scientists from around the world with one of their best research tools. The highly penetrating light is ideally suited to a broad range of applications. Most of what we know about the three-dimensional arrangement of atoms in materials from elements to catalysts, from DNA to viruses, has come from x-ray research, and this newest x-ray device is taking that research to new levels. Users come from universities, industry, medical schools, and other research institutions to conduct frontier science, studying materials of all types using the APS. The Argonne Tandem Linear Accelerator System (ATLAS) was the world's first superconducting ion accelerator facility and is capable of accelerating ions of all natural elements from hydrogen to uranium. Also visit the Engineering Research Exhibit, which describes Argonne's historical role in the development of nuclear power and its current role in the resolution of key problems in the nuclear industry.

TOUR 3

National Center for Learning and Teaching in Nanoscience and Engineering (NCLT) at Northwestern University-Evanston

The tour begins at the Ford Motor Company Engineering Design Center, where participants will learn about NCLT initiatives in higher education and the latest on cutting-edge research in Nanoscale Science and Engineering. Then, move to the NUANCE Center (Atomic and Nanoscale Characterization Experimental Center) facility, which houses an array of scanning and transmission electron microscopes (SEM and TEM) as well as scanning probe and related lithography instrumentation for patterning, fabrication, and localized measurements. It also houses state-of-the-art surface science and related instrumentation, including XPS, ToF SIMS, and FT-IR.

NAWI gratefully acknowledges the assistance of Bob Sheets of the University of Illinois, Fran Beauman of Southern Illinois University, and Rhonda Patterson of Chicago Public Schools for recommending tour sites, making initial contacts, and securing transportation for this year's business and industry tours.

FRIDAY, April 27, 2007

7:30-8:30 a.m. Plated Breakfast (Renaissance)

8:00-8:30 a.m. NAWI Business Meeting

All NAWI members/conference participants are invited to participate. Conference registration includes a one-year membership in NAWI.

8:30-10:15 a.m. General Session III

State of the Union in Career and Technical Education

Domenic Giandomenico, Director of Government Relations

National Association of State Directors of CTE Consortium (NASDCTEc)
What is Congress's intent for career and technical education? Mr. Giandomenico will address implementation of Perkins IV and what the reauthorized law means for CTE programs in your school, state, district, and college/university. Question and answer session included.

10:15-10:30 Break

10:30-11:30 a.m. State Assessment Systems: Focus on the Next Generation Industry Credential

John McDonagh, Massachusetts Department of Education
Doug Webster, Vermont Department of Education

How will your state address the student technical skill attainment requirement in Perkins IV? Will that same measurement of student skill level satisfy the demands of businesses and industries in your state? Hear what two states are doing to make CTE assessments more meaningful for students and for employers. Audience participation encouraged.

11:30 a.m. Adjourn