SESSION: *Connected Learning in the Workplace*
PRESENTERS: *Deborah Boisvert, Broadening Advanced Technological Education Connections, University of Massachusetts, Boston; Jim Whalen, Boston Properties, Inc.; Jeff Stolz, Integrated Defense Systems, Raytheon Company; Kostian Iftica, Brilliant Geeks; Henk Portier, Engineering Operations (Intern), Raytheon Company*

Broadening Advanced Technological Education Connections (BATEC)

Background

Broadening Advanced Technological Education Connections (BATEC) is the National Science Foundation's Advanced Technological Education (NSF ATE) National Center for Computing and Information Technologies. BATEC's efforts in curriculum, outreach, and research reflect the demands of the 21st century workplace.

BATEC is working in the urban areas of Boston, Chicago, San Francisco, and Las Vegas to:
- define and strengthen academic pathways and career opportunities for computing and information technology professionals;
- facilitate and leverage strategic partnerships to build awareness, generate interest, and support learning opportunities in these ethnically diverse urban areas; and
- conduct actionable research that informs policymakers, educators, workforce development agencies, and industry leaders on the subject of authentic curriculum and applied information technology.

Community Colleges Offer State of the Art Curriculum Designed for an Innovation Economy

BATEC's academic partners collaborate to define new academic programs and revise existing curricula with the support of industry professionals committed to successful student outcomes. This approach to authentic education is often out of the comfort zone for faculty but invaluable to the students they serve.

Curriculum development is holistic in nature. In an effort to connect cybersecurity and computing, Middlesex Community College—with industry advisors from the Massachusetts Institute of Technology's (MIT) Lincoln Laboratory and the MITRE Corporation, and assistance from Bunker Hill Community College and the Center for Security and Information Assurance (CSSIA)—has redefined their Computer Science degree program to offer a Secure Software Development track. This curriculum conforms to the newly released *National Cybersecurity Workforce Framework* developed jointly by the National Security Agency (NSA) and the Department of Homeland Security (DHS).

Program development encourages student advancement. Bunker Hill Community College, with the support of the U.S. Department of Labor, has developed a seamless progression for all of their computing, information, and networking technology programs. These stackable credentials afford students the opportunity to achieve shorter term success and earlier work-study employment while they continue to make sequential progress towards a traditional degree.

The pathways are informing work in Chicago with their Early College STEM and College to Career initiatives. Stackable credentials have also been a strategic asset credited with workforce development for returning veterans and displaced workers.

Professional development connects educators with business and industry. College of Southern Nevada (CSN) and Western Nevada College (WNC) are leading an initiative entitled *Content in Context*. This professional development workshop series, which brings together industry leaders with educators in meaningful dialogue, has served to integrate professional skills training with technical skills development in response to Nevada's state-issued guidelines for employability skills. More than 3,000 students in technical education programs at CSN are benefiting annually from industry-driven approaches to experiential exercises developed during the CSN-offered workshops. This endeavor is being scaled to other locations in Nevada, Southern California, and Cleveland.

Students Gain Access to a Vibrant Career Pathway Supporting Their Advancement as IT Professionals
BATEC's industry partners provide technology work-based opportunities that are increasing student access to career pathways in information technology. In addition to the highly successful Tech Apprentice summer program for high school students, which places over 100 interns each year, our community college partners have collaborated to develop a systematic, scalable model for student qualification, preparation, and placement in semester-long internships at small and medium businesses in their local communities. Mass Bay Community College and Quinsigamond Community College are placing 50 Web Development and Media Technology students annually, with a placement success rate of over 90 percent, with no dedicated faculty or school resources required. Lessons learned from these successes are now benefiting the campuses of the College of Southern Nevada in their internship implementation.

The Mid-Pacific ICT Center is replicating the processes used in Boston to identify and strengthen the linkages between their ICT programs, courses, certificates, and credentials in the five ICT-related departments at City College of San Francisco to the pathway and academy programs in the San Francisco Unified School District and local community-based organizations, four-year colleges and universities, ICT industries, and employers. These partnerships are creating new opportunities for student success.

Educators Enter into Data-Driven Discussions with Industry Leaders about Career Options for Their Students
BATEC's academic partners are the beneficiaries of a data-driven research initiative aimed at better understanding and profiling middle-skill career pathways. Jointly authored by BATEC and Monster Government Systems, *Sizing the Middle Skill Employment Gap* is a comprehensive analysis of work activities, prerequisite skill requirements, current employment data, and trend analysis. This report and its analysis of regional workforce development efforts has proven to be a powerful and effective platform of information from which to engage industry professionals in real-time, data-driven discussions of workforce needs and student outcomes.

For More Information
http://www.batec.org