Experiential Learning Programs for Computer and Information Systems Students

In addition to academic and technical preparedness, on-the-job training and other work-based learning experiences are critical components of worker readiness programs. These national programs provide co-curricular value to student career preparedness:

National Cybersecurity Society (NCSS)

The National Cybersecurity Society is a non-profit organization focused on providing cybersecurity education, awareness and advocacy to small businesses. The NCSS provides cybersecurity education tailored to the needs of the small business owner; helps small businesses assess their cybersecurity risk; distributes threat information to business owners so that they will be more knowledgeable about the threats facing their business; and provides advice on the type of services needed to stay safe online.

The Institute of Electrical and Electronics Engineers (IEEE)

The IEEE Computer Society is the world's leading membership organization dedicated to computer science and technology. Serving more than 60,000 members, the IEEE Computer Society is the trusted information, networking, and career-development source for a global community of technology leaders that includes researchers, educators, software engineers, IT professionals, employers, and students.

Association for Computing Machinery (ACM)

ACM, the world's largest educational and scientific computing society, delivers resources that advance computing as a science and a profession. ACM provides the computing field's premier Digital Library and serves its members and the computing profession with leading-edge publications, conferences, and career resources.

Black Data Processing Associates (BDPA)

BDPA has been a leader and pioneer in technology and STEM training for IT professionals and High School students since 1986. The National High School Computer Competition (HSCC) program which is a hands-on training program, has introduced tens of thousands of high school students to coding and application development while also presenting opportunities for students to obtain college scholarships due to the generosity of sponsors and partners.

CyberPatriot the National Youth Cyber Education Program

CyberPatriot the National Youth Cyber Education Program created by the Air Force Association (AFA) to inspire K-12 students toward careers in cybersecurity or other science, technology, engineering, and mathematics (STEM) disciplines critical to our nation's future. CyberPatriot offers several programs for K-12 students such as the National Youth Cyber Defense Competition, AFA Summer Camps, the Elementary School Cyber Education Initiative, the Cybereducation Literature Series and CyberGenerations.

The Association for Unmanned Vehicle Systems International (AUVSI)

Students involved in an AUVSI Student Chapter, gain experience in the industry and receive guidance from professionals in the chapter. Drones are emerging as a safer method for bridge inspection.

Summer Transportation Internship Program for Diverse Groups (STIPDG)

The U.S. Department of Transportation (U.S. DOT), Federal Highway Administration's (FHWA) Office of Innovative Program Delivery offers internships to college students of various backgrounds. The objective of the STIPDG is to provide college/university students with hands-on experience and on-the-job training while working on current transportation-related topics and issues. The STIPDG is open to all qualified applicants but is designed to provide qualified women, persons with disabilities, and members of diverse groups with summer opportunities in transportation where these groups have been underrepresented.

US DOT Federal Highway Administration (FHWA)

FHWA offers internships and financial support through its Dwight David Eisenhower Transportation Fellowship Program to students pursuing transportation-related occupations. Two hundred students are placed annually in interest-related assignments throughout the agency.

Innovative Learning Strategies for a Computer and Information Systems Program of Study

To establish curricular lessons and activities that incorporate the latest strategies for increasing student learning effectiveness and retention, a review of practices deployed by workforce and CTE practitioners reveals several approaches that would benefit students within computer-related program of study. These learning strategies include:

Competency-Based Curriculum

Curriculum that meets academic and quality standards that is designed and organized by competencies required for jobs and cross-walked with industry skill standards and certifications, where applicable. Job profiling and the use of "SMEs" should be considered to meet the competency needs of business.

Modularized Curriculum

Structure and sequence curriculum in modules tied to jobs with multiple entry/exit points, with multiple levels of industry recognized credentials built into the sequenced pathway.

Asynchronous Learning

Provide education and training for students and incumbent workers at times and locations convenient to students and employers, rather than instructors or institutions. This may include evenings or weekends, blended or "hybrid" delivery models, and delivery at off-campus locations.

Problem-Based Learning

Instruction that helps students who benefit from hands-on learning foster team-building skills while solving real-life problems.

Experiential Learning

Incorporate opportunities for "learning-by-doing", including internships, co-op work experience, simulations, and team class projects that are assignments from local employers.

Context-Based Learning

By interpreting new information in the context or place of where and when it occurs and relating it to what we already know, we come to understand its relevance and meaning. To design effective strategies for learning requires an understanding of how context shapes learning.

Individual Learning

Learners are different and innovative learning environments reflect the various experiences and prior knowledge that each student brings to class. It's important that practices and processes help teachers engage each student where they are.

Online "Micro-Learning"

This approach provides short, content-rich exploration of career opportunities and training modules that lead to a new form of stackable credentialing through badges and other forms of recognition, typically subject to the agency hosting the content.

Industry Academies

Employers develop their own internal programs that are offered to candidates immediately following high school graduation. No formal post-secondary education or training is required for these students to enter a job, and candidates who successfully complete these employer-based programs are immediately hired.