Competency Models In Action:

Community College Implements Core Information Technology Curriculum

July 2015

> ➢ Working with grant partners to implement core curriculum
> ➢ Collaborating with industry leaders to identify skill needs
> ➢ Providing workers with industry-recognized certifications

Introduction

When it comes to preparing individuals for information technology occupations, central New Mexico Community College (CNM) has good things going. CNM is part of a 10-member consortium of New Mexico community colleges that received a Trade Adjustment Assistance Community College and Career Training (TAACCCT) grant to develop common core curricula across institutions. Working in collaboration with other consortium partners, CNM took the lead in implementing a common core curriculum for information technology occupations.

The curriculum, initially known as the Skill Up Network Information Technology Pathway (SUN-IT), was launched as a pilot project in 2014 focused on developing support skills for information technology technicians. SUN-IT has now evolved into the CNM STEMulus Center Cyber Academy with greater emphasis on preparing students for computer networking, security and programming occupations. Both initiatives reflect the principles of the U. S. Department of Labor, Employment and Training Administration's information sector competency models for Information Technology and Cybersecurity.

The Workforce Need

According to the Bureau of Labor Statistics, the outlook for information technology (IT) occupations is excellent. It is anticipated that for computer support specialists, with median pay of $48,900 per year in 2012, employment will increase by 17% between 2012 and 2022, faster than the 10.8% average increase for all occupations. During that same time period, for computer systems analysts, with median pay of $79,680 in 2012, employment is projected to increase by 25%, much faster than average. Likewise, for information security analysts, with median pay of $86,170 in 2012, employment is projected to increase by 37%, also much faster than average. [1]

Approach

In 2012, CNM convened a task force comprised of other consortium member colleges to participate in the development of the SUN-IT pathway. The task force had three primary goals: 1) to identify and implement a shared core curriculum that meets regional employer needs for

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[1] Bureau of Labor Statistics, *Occupational Outlook Handbook, 2014-2015 Edition*

entry-level IT positions; 2) to develop IT concentrations that "snap-on" to the core program, providing additional skills in specialized areas based on industry and regional needs; and 3) to provide course sharing online to enable students to achieve competency throughout the consortium, regardless of physical location and local offerings.

"We also established an advisory committee of IT employers, including Intel Corporation, Presidio Corporation and the Kemtah Group, seeking to find out their workforce needs and what skills they valued," says Dr. David Beach, Academic Affairs Advisor, School of Business and Information Technology at CNM. "In 2012-2013, we developed a formal employer engagement plan; held and employer meeting; disseminated an employer survey on workforce needs; and conducted and analysis of survey results. Using the Information Technology Competency Model (ITCM) as a conceptual framework, we settled on the CompTIA certifications as the means to achieve the skills that employers had identified."

The SUN-IT curriculum was comprised of two key components. The core curriculum trained students for entry-level employment in information technology support including technical customer support, troubleshooting, analysis and problem solving. Snap-on concentrations built on the core curriculum, providing specific technical knowledge in high demand areas such as cybersecurity, networking, virtualization/cloud computing, and business intelligence. It reflects the tiered approach of the ITCM framework including personal effectiveness and workplace competencies, such as customer service, professionalism, ethics, integrity, and written and oral communication skills, in addition to technical proficiencies. The capstone experience for program participants was an unpaid internship for a minimum of four weeks with local businesses or state government.
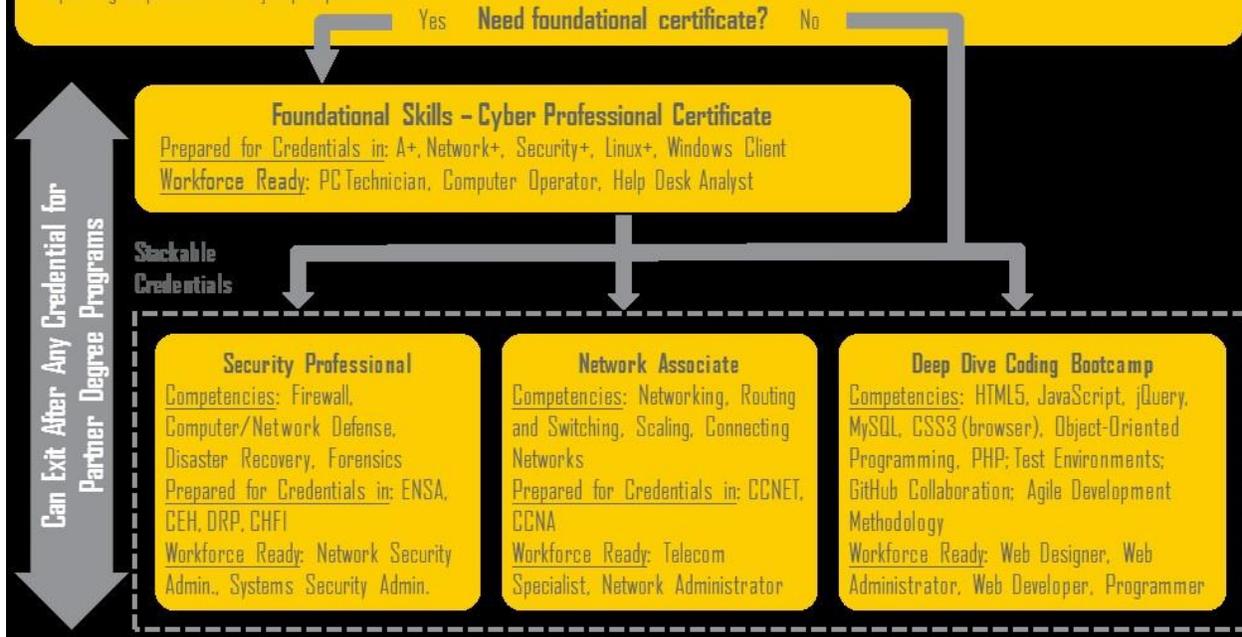
"Through the New Mexico Department of Workforce Solutions, we presented the curriculum to groups of displaced workers, mostly from the IT sector, as an accelerated pathway to industry certifications and ultimately placement in IT occupations," says Dr. Beach. "Twelve individuals were accepted into the program which was piloted from June 2014-March 2015. None of them came in with industry certifications and all of them left with them. The top performers finished up with ten certifications; the minimum achieved was four. A number of graduates were asked to interview for open positions after their internships, and four of the 12 graduates have obtained employment in the IT sector to date."

Next Steps

Recruitment is underway for the first competency-based courses to be offered by CNM's new Coding Boot Camp. The courses in these programs will equip students who already have IT foundational skills with industry-validated certifications through providers such as CompTIA, EC Council and Cisco Systems. A Cyber Professional Certificate program will also be available for those individuals who lack foundational skills. Verifiable industry certifications can be awarded credit toward a degree in an applicable field of study.

CNM STEMulus Center: Cyber Academy Program Stacked and Latticed Credentials

Engagement and Placement Process: Recruitment to target low-income, low-skilled, minority, and un- or underemployed workers. Students may be first time college students, unemployed workers seeking skills development, or those employed in the field and interested in improving capabilities and job prospects.

Yes   **Need foundational certificate?**   No

Foundational Skills – Cyber Professional Certificate
Prepared for Credentials in: A+, Network+, Security+, Linux+, Windows Client
Workforce Ready: PC Technician, Computer Operator, Help Desk Analyst

Can Exit After Any Credential for Partner Degree Programs

Stackable Credentials

Security Professional
Competencies: Firewall, Computer/Network Defense, Disaster Recovery, Forensics
Prepared for Credentials in: ENSA, CEH, DRP, CHFI
Workforce Ready: Network Security Admin., Systems Security Admin.

Network Associate
Competencies: Networking, Routing and Switching, Scaling, Connecting Networks
Prepared for Credentials in: CCNET, CCNA
Workforce Ready: Telecom Specialist, Network Administrator

Deep Dive Coding Bootcamp
Competencies: HTML5, JavaScript, jQuery, MySQL, CSS3 (browser), Object-Oriented Programming, PHP; Test Environments; GitHub Collaboration; Agile Development Methodology
Workforce Ready: Web Designer, Web Administrator, Web Developer, Programmer

Related Links

Central New Mexico Community College
http://www.cnm.edu

The STEMulus Center
http://stemuluscenter.org