Online Competency-Based Education of Technicians in Computer-Aided Design and Cybersecurity

NSF ATE Grant No. 1901776 • Project Website: tstc.edu/nsf

PROJECT GOAL

Develop online competency-based programs (CBE) for technicians pursuing careers in Architectural Design and Engineering Graphics Technology (ADEG/CAD) and Cybersecurity (CYS).

PROJECT OBJECTIVES

- Provide professional development for faculty.
- Provide ongoing mentoring and support services for students.
- Develop a CBE online curriculum that can be used in other CTE fields and by other institutions.
- Improve job placement opportunities so that degree program graduates will be placed promptly and appropriately.
- Provide academic and career opportunities for nontraditional and rural students.

KEY ACTIVITIES

- 100% of Cybersecurity curriculum developed
- 100% of CYS and ADEG faculty attended PBE training
- Four enrollment coaches deployed statewide
- Three modules of "Shaping You to Get Hired" integrated into curriculum
- 100% of ADEG curriculum developed
- Moved all CYS and ADEG courses to new LMS
- NETLAB+ deployed for remote access
- Transition to fully online/hybrid modality coming Fall 2022

PERFORMANCE-BASED EDUCATION (PBE)

Let education work for YOU!

PBE is the name of TSTC's course-based competency-based education initiative that is focused on the mastery of specific industry skills/competencies with opportunities to accelerate.

For more information, visit: tstc.edu/you

KEY RESOURCES

Available on the project website:

- PBE playbook
- Templates (deconstruction, learning journey, assessment, syllabus)
- Sample course modules
- Expanded PBE process
- Assessment/grading policies

Visit the project website

PERFORMANCE-BASED EDUCATION (PBE) DEVELOPMENT PROCESS

Focus on mastery of specified industry skills or competencies

TSTC-Experienced Faculty

- 5+ years working in industry (technical)

Validated Industry Skills Standards

- Texas Workforce Investment Council
- NICE Framework/Center of Academic Excellence (CAE) – Cyber Defense (CD)

Industry Recognized Certifications

- Security+
- CHFI, ACE

Workforce Education Manual (WECM*)

Industry-Based Advisory Board

- Calibrate, SkillsEngine

** Industry-established skill standards for Texas Workforce education career cluster*

Course Competencies

Course Deconstruction—Course Matter Expert (CME)/ Subject Matter Expert (SME)

- Course Outline
  - Course Outcomes
  - Learning Objectives

Learning Journey

- Lesson (Competency)
- Assessment Preparation Activities
  - Skills-Building Hands-On Labs
  - Knowledge/Theory — Check for Understanding
- Mastery Assessment
  - Knowledge
  - Performance
- Module Progression
  - Self-directed (Acceleration possible)
  - Demonstrated Proficiency of Knowledge/Skills
  - Grading Policy
    - Mastery Met: A or B (80–100)
    - Mastery Not Met: Reteach/Reassess

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