PRIOR LEARNING ASSESSMENT: THE EMET PROGRAM EXPERIENCE

Terry Speicher

09-May-2013

Hendrick Best Practices for Adult Learners Conference

Outline

- Credit by Examination Examples
  - EGT 114 portfolio evidence of a product
  - CMPET 117 test demonstration of a process
  - EDSGN 100 assessment rubric for multiple sources
- Student Achievement
  - Appropriate courses for CRX
  - Academic integrity
  - EMET student testimonials

Portfolio Example

EGT 114 Intermediate Computer-Aided Engineering and Design – Spatial relations of applications in engineering technology with more advanced functionality of computer-aided drafting and design systems. (Ferrara, "EMET Standard Course Outline," August 2011)

- *Students should have an ability to communicate effectively regarding broadly-defined electro-mechanical engineering technology activities.*

- *Students should be able to use computer-aided drafting or design tools to prepare graphical representations of electro-mechanical systems.*

Product Evidence

- The ability to produce orthographic multi-view drawings where parts are correctly presented, with information including dimensions and tolerances adhering to ANSI Y14 standards,

- The ability to produce working drawings and 3-D assembly drawings, consistent with ANSI Y14 standards.

- The ability to successfully create and modify complex geometry using 2-D software or 3-D parametric solid modeling software adhering to ANSI Y14 standards.

- The ability to successfully create and modify assemblies of three or more unique parts using the 2-D software or 3-D parametric solid modeling software adhering to ANSI Y14 standards.

- The ability to obtain true shape (true size, distance, area, and angle data) using methods of conventional descriptive geometry or the analysis tools of a parametric solid modeler adhering to ANSI Y14 standards.

Test Example

CMPET 117 Digital Electronics – Fundamentals of digital circuits including logic circuits, Boolean algebra, Karnaugh maps, counters, and registers. (Gapinski, "EET Standard Course Outline," November 2008)

- *Students should be able to apply basic knowledge in electronics, electrical circuit analysis, electrical machines, microprocessors, and programmable logic controllers.*

- *Demonstrate a working knowledge of drafting and computer usage, including the use of one or more computer software packages for technical problem solving.*

Process Demonstration

- Students will be able to represent values in various number systems and perform number conversions between different number systems including binary, octal, decimal, and hexadecimal.

- Students will demonstrate the knowledge of: operation of basic logic gates using IEEE/ANSI standard symbols; Boolean algebra including algebraic manipulation/simplification, and application of DeMorgan's theorems; and Karnaugh map reduction method.

- Students will demonstrate the knowledge of operation of basic types of flip-flops, registers, counters, decoders, encoders, multiplexers, and demultiplexers.

- Students will be able to analyze and design digital combinational circuits including arithmetic circuits (half adder, full adder, and multiplier).

- Students will be able to analyze sequential digital circuits.

- Students will demonstrate knowledge of the nomenclature and technology in the areas of memory devices: ROM, RAM, PROM, PLD, FPGA, etc.

- Students will be able to use a logic simulation program on the computer, such as logic works or other appropriate software to analyze and design digital circuits.

PLTW Example

EDSGN 100 Introduction to Engineering Design - Introduction to engineering design processes, methods, and decision making using team design projects; design communication methods including graphical, verbal, and written. (Lau, "EDSGN Standard Course Outline," August 2012)

- *Be able to function effectively as a member of a technical team.*

- *Demonstrate an understanding of and a commitment to address professional and ethical responsibilities including a respect for diversity.*

- *Demonstrate an ability to select and apply the knowledge, techniques, skills, and modern tools of their discipline to broadly-defined engineering technology activities.*

- *Demonstrate knowledge of the impact of engineering technology solutions in a societal and global context.*

Prior Learning Evidence

- Conceptually design a system, component, product, service, or process to meet desired needs within realistic constraints.

- Apply an engineering design process.

- Participate effectively in small teams.

- Communicate effectively using written and graphical forms and oral presentations.

- Demonstrate foundation for professional and ethical responsibility.
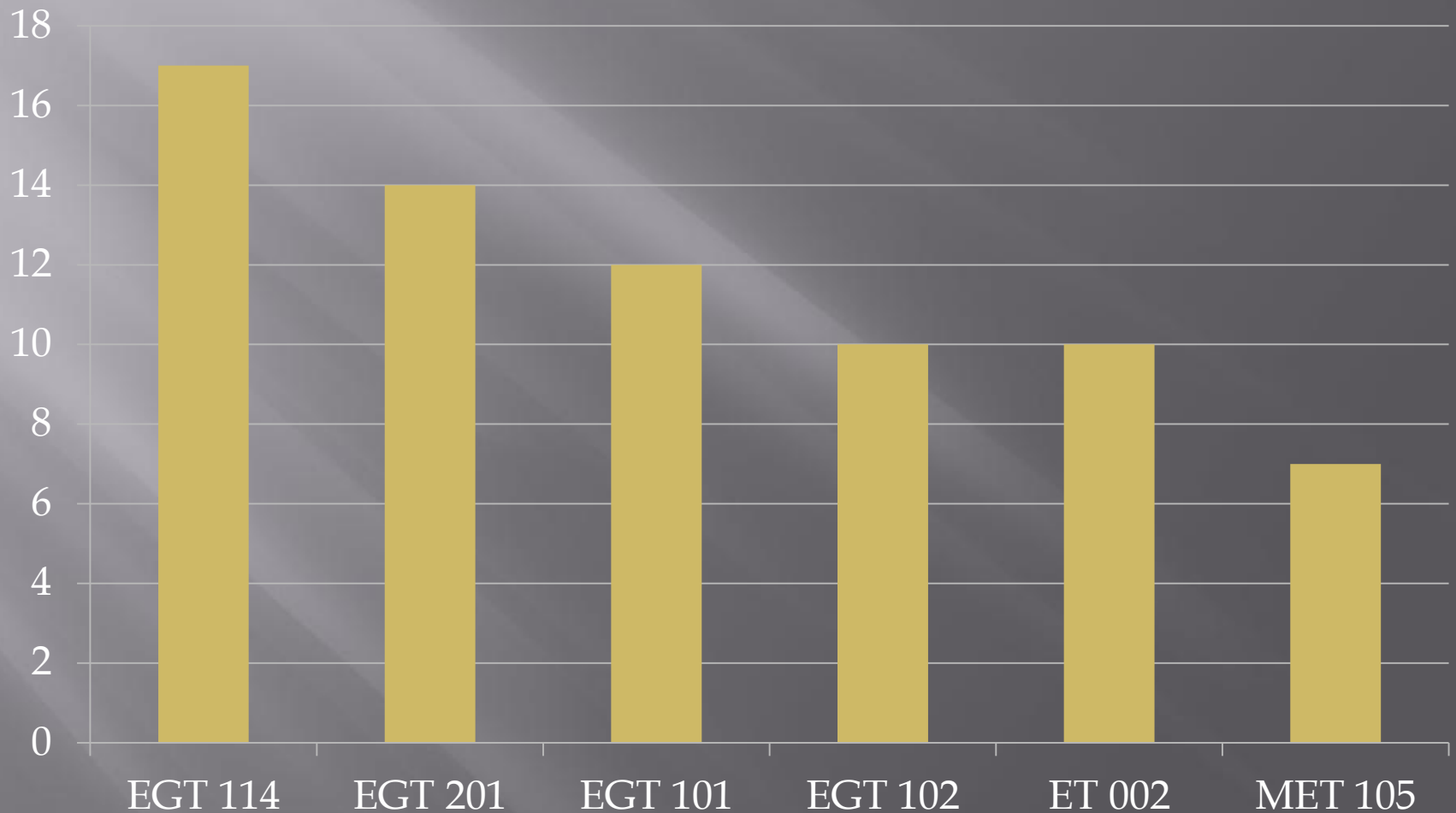
- Use software tools relevant to engineering practice.

Adult Student Success

Graduates from Spring 2009 through Fall 2012

- Total of 21,281 with 223 or 1% using CRX
- 40 Engineering Technology graduates
  - 3 majors (2EET, 2MET, or EMET)
  - 6 campuses (DS, BD, BK, HN, NK, & YK)
  - 26 courses (CMPET 005, 117, & 120; EDSGN 100; EET 101, 105, 109, & 275; EGT 101, 102, 114, 120, 201, & 297; EMET 222, 311, 330, & 440; ET 002; IET 101, 215, & 216; MCHT 111 & 214; MET 105 & 206)
  - 105 Credit by Examination procedures completed

Academic Integrity

http://xkcd.com/451/

Student Testimonials

- I was able to get credit for classes that I already knew the material for, which allowed me to catch up on other classes I needed coming in as a transfer student. -Jason Jones

- Nontraditional students usually find they need to come back to school for two reasons, a career change or advancement in a field they are currently in. The majority of classes that are appropriate for credit by examination fall within the first two years of coursework. -Steve Genova

- Credit by examination enabled me to use knowledge I've gained thru working in the engineering field to save time in completing my degree. -Tim Mosser

Summary

- Credit by Examination is a versatile process for Prior Learning Assessment.

- CRX applies to courses where skills are demonstrated by portfolio evidence.

- CRX applies to courses where knowledge is demonstrated by subject testing.

- Academic integrity assured through student and instructor discussions.

- Students embrace the opportunity to accelerate their degree completion.

Thank You

Questions?