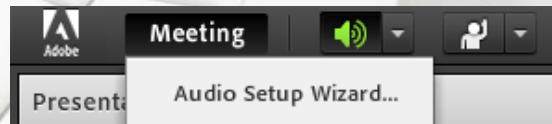


# *Welcome to* Teaching + Learning Tuesdays

June 21, 2016 | 2:30PM

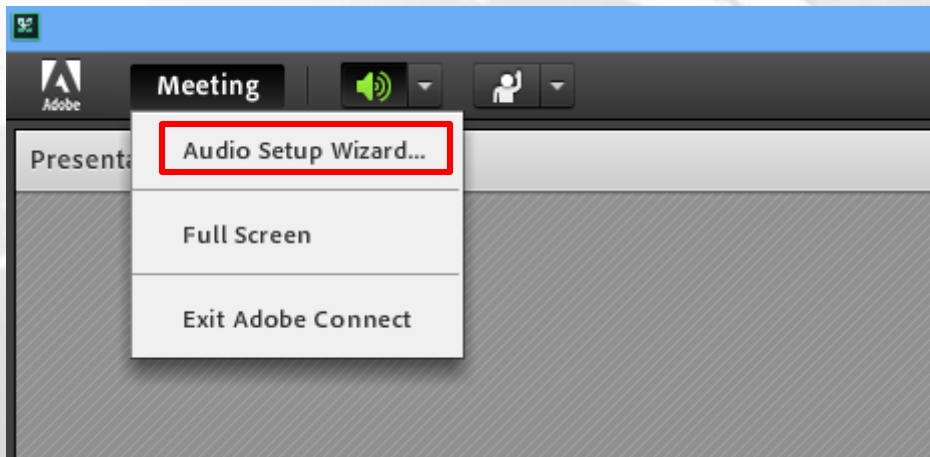
Please adjust your audio using the Audio Setup option under the Meeting menu.



Teaching + Learning Tuesday



# Audio Setup Wizard



# Rethinking Everything:

Learning as the Constant to Disrupt  
Higher Education

Naomi R. Boyer, Ph.D.



# Polling Question

What is your role?

A. Faculty

B. Staff

C. Administration

*We are Polk.*<sup>TM</sup>

# Polling Question

Rate your knowledge of competency based education (CBE):

- A. Start from the beginning-I'm new to the game
- B. Some knowledge-but not sure how it fits
- C. Been involved with CBE in practice
- D. Expert knowledge
- E. Thought I knew but getting more confused by the day

*We are Polk.*<sup>TM</sup>



# Project Overview

Funding

Core Concepts






Institutional Context

Regional Need



# Our Definitions and Assumptions

- Competency Based Education=CBE
- Units of learning aligned to skills or concepts
  - Not contact hours
  - Nor Carnegie credit hours
- Direct Assessment
  - Non instructor led
  - Not assessed by faculty
- Hybrid
  - Delivery: online/face-to-face
  - Combined traditional and CBE
  - Direct assessment and credit-based

-  Improve learning outcomes & success
-  Affordability
-  Student mastery
-  Flexibility
-  Time to completion
- Empower the individual learner



# The Shift to Competency-Based Education

Polk State College's

- Modular
- Self-Paced
- Non-term
- Competency-based
- Open Lab
- Faculty Mentored
- Open-Entry / Open-Exit

Engineering Technology Degree







# NSF ATE Funding

- Implement an OEEOE program
- Build a collaborative relationship between the secondary system and the college
- Providing pathways to baccalaureate degrees
- Professional development
- Outreach initiatives



Inspired by the FVTC Electro-Mechanical  
Modular Semester-based Model



# CBE & OEOE Challenges





# ***POLK STATE*** ***COLLEGE***

***is*** POLK COUNTY'S COLLEGE

***polk.edu***



## STUDENT DEMOGRAPHICS

**ANNUAL** UNDUPLICATED HEADCOUNT : 16,490  
DUAL ENROLLMENT HEADCOUNT : 2,997



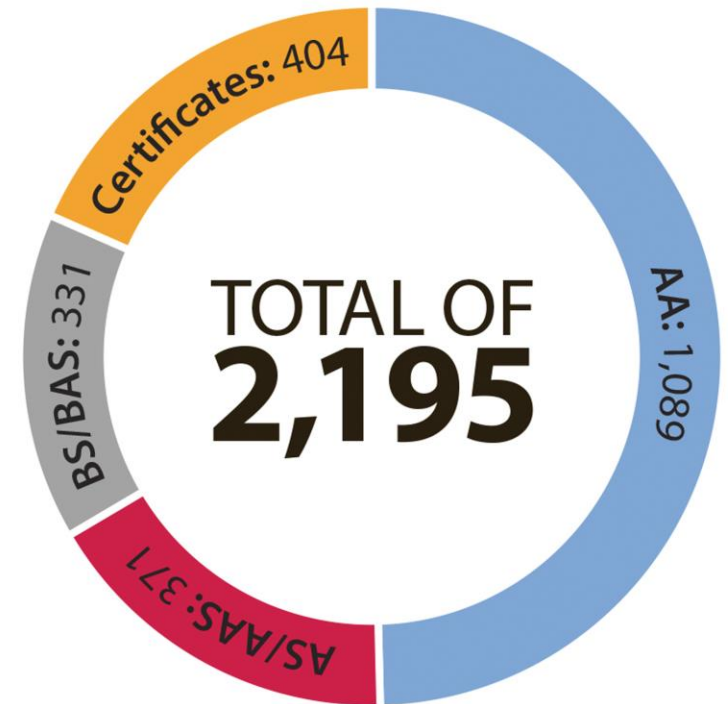
### ENROLLMENT BY AGE GROUP

Younger than 20	38%
20-24	26%
25-34	20%
35 and older	16%

**26** Average student age

## ANNUAL DEGREE COMPLETIONS

(SUMMER 2014, FALL 2015, SPRING 2015)





# OUR SUCCESS INDICATORS \*

**20,500**  
Number of individuals served at Polk State  
Corporate College (2015)

**91.68%**  
Job placement and continuing  
education rate

**84.21%**  
Student success rate

**63.26%**  
Student retention  
rate

**32.86%**  
Completion rate  
(Fall 2010 cohort)



Started

at Polk State,

Accepted to FOUR

state universities



**Fabian**

'13 ASSOCIATE IN ARTS, POLK STATE COLLEGE  
'15 BACHELOR OF ARTS, UNIVERSITY OF FLORIDA  
ADVERTISING INTERN, NEW YORK CITY





## OUR STUDENTS IN DEPTH

78%

of our first-time-in-college students need academic support to succeed

41.9%

of our students receive need-based financial aid

61%

of our students are first generation-in-college students

2x

Polk State graduates' initial annual wages are nearly twice the average annual wage for Polk County

Graduating debt-free

means I can put more

money in

his college fund.

Oscar

UNDECLARED, '32

Vanessa

BACHELOR OF APPLIED  
SCIENCE IN SUPERVISION  
AND MANAGEMENT, '14  
LAKE WALES





	<b>POLK ** STATE COLLEGE</b>	<b>Polk County</b>
<i>Male</i>	36%	49%
<i>Female</i>	64%	51%
<i>White</i>	53%	62.8%
<i>Black</i>	18%	15.6%
<i>Hispanic</i>	18%	19%
<i>Other</i>	11%	2.6%



# Workforce & Focus Group Data

## Industry Trends

- Need for more education/technical competency (especially in automation, bio-technology / biomedical device mfg skills, supply chain management, engineering and process technology, problem-solving skills, etc.)
- Evolving Business Models: Need agile/flexible production Break down silos between admin, management & production (teams)
- Generational Differences
- Need Real World (hands-on) Learning



ManufacturingTDI:

<http://www.manufacturingtdi.com/Publications>





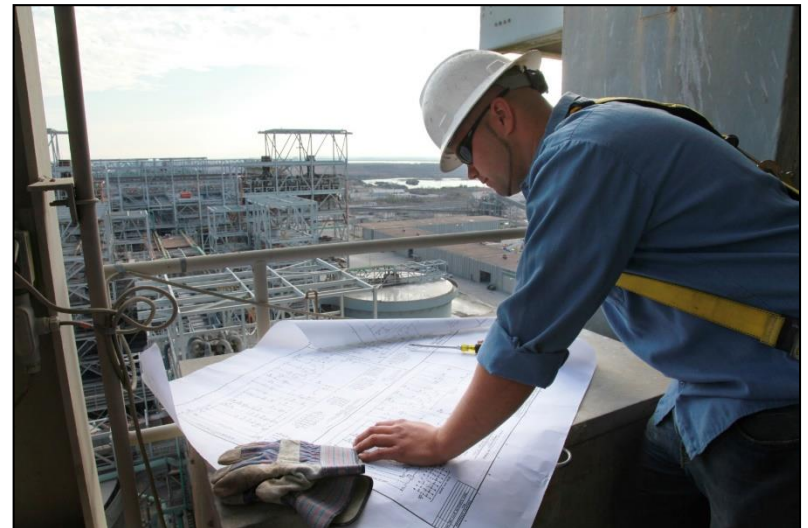
# Open Entry/ Early Exit

Engineering Technology  
Program Demographic  
How It Works  
Curriculum and Policies



# Engineering Technology – Adv. Mfg.

- Applied Engineering Degree
- Internship Opportunities
- Certification alignment (MSSC CPT, ASQ, AutoDesk...)
- Courses in:
  - Automation
  - Industrial Safety
  - CADD
  - Metrology
  - Quality, Lean and Six Sigma
  - Industrial PLC's and Robotics
  - Fluid Power...
- College Credit for Industry Certification Articulation



Polk State ET Graduate Bryan Hogue on the job at Mosaic



# Increasing Enrollment & Completion

## Post-Traditional

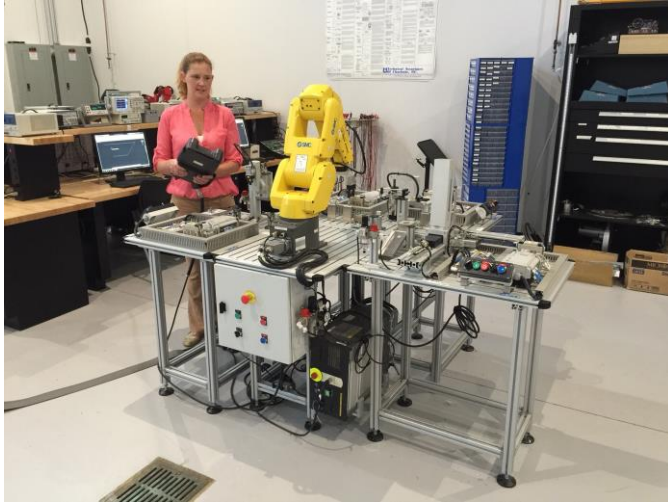
- > 22 years of age
- Working
- Potential for shift & swing shift schedules
- Rapid Increase in needed job skills
- Child care responsibilities
- Veterans
- Training to Academic pathways
- Employer networking







# Non-term / Open Lab



## OEOE

Start any day of the year (Open Entry)

Complete at your pace (Open Exit)

Individualized critical registration dates

Calculated based on the individual (not the term)

Drop (n+4)

Withdrawal (n+15)

End of “term” (n+35)

## Open Lab

9:00am – 8:00pm Monday - Thursday

9:00am – 6:00pm Friday

Online Scheduling (Appointy)



# 42 x 1 cr.hr. Courses

General Education Courses: (Traditional Semester-based F2F, Online, or Hybrid)

Program Courses:

- Modular 1 cr.hr.
- Consistent Course Numbering
- Non-term
- Hybrid (Online in LMS and Required Hands-on in Open Lab)

GENERAL EDUCATION and ENGINEERING TECHNOLOGY CORE COURSES		
<b>GENERAL EDUCATION COURSES (18 credits)</b>		
<ul style="list-style-type: none"> <li>• ENC 1101 College Composition I</li> <li>• Natural Science requirement</li> <li>• MAC 1105 College Algebra</li> <li>• Social Science requirement</li> <li>• Humanities requirement</li> <li>• Health Science requirement</li> </ul>	3cr.hr. 3 3 3-4 3 2-3	<ul style="list-style-type: none"> <li>• EET 1084C-2 Intro to Electronics (▲)</li> <li>• EET 1084C-3 Intro to Electronics (▲)</li> <li>• ETM 1010C-1 Mech. Meas. &amp; Instrumentation (▲)</li> <li>• ETM 1010C-2 Mech. Meas. &amp; Instrumentation (▲)</li> <li>• ETM 1010C-3 Mech. Meas. &amp; Instrumentation (▲)</li> <li>• ETI 1420C-1 Mfg Processes and Materials (▲)</li> <li>• ETI 1420C-2 Mfg Processes and Materials (▲)</li> <li>• ETI 1420C-3 Mfg Processes and Materials (▲)</li> <li>• ETI 1110C-1 Introduction to Quality (▲)</li> <li>• ETI 1110C-2 Introduction to Quality (▲)</li> <li>• ETI 1110C-3 Introduction to Quality (▲)</li> <li>• ETI 1701C-1 Industrial Safety (▲)</li> <li>• ETI 1701C-2 Industrial Safety (▲)</li> <li>• ETI 1701C-3 Industrial Safety (▲)</li> </ul>
<b>ENGINEERING TECHNOLOGY CORE (18 credits)</b>		
<ul style="list-style-type: none"> <li>• ETD 1320C-1 Computer Aided Drafting</li> <li>• ETD 1320C-2 Computer Aided Drafting</li> <li>• ETD 1320C-3 Computer Aided Drafting</li> <li>• EET 1084C-1 Intro to Electronics (▲)</li> </ul>	1 cr.hr. 1 1 1	
<b>ADVANCED MANUFACTURING SPECIALIZATION COURSES</b>		
<b>REQUIRED TECHNICAL COURSES (13 credits)</b>		<b>TECHNICAL ELECTIVES (Choose 11 credits from below)</b>
<ul style="list-style-type: none"> <li>• ETS 1542C-1 Intro to PLC's (◆)</li> <li>• ETS 1542C-2 Intro to PLC's (◆)</li> <li>• ETS 1542C-3 Intro to PLC's (◆)</li> <li>• ETS 1511C-1 Motors and Controls (◆)</li> <li>• ETS 1511C-2 Motors and Controls (◆)</li> <li>• ETS 1511C-3 Motors and Controls (◆)</li> <li>• ETI 1622C-1 Lean Mfg and Six Sigma</li> <li>• ETI 1622C-2 Lean Mfg and Six Sigma</li> <li>• ETI 1622C-3 Lean Mfg and Six Sigma</li> <li>• ETM 2315C-1 Hydraulics and Pneumatics (◆)</li> <li>• ETM 2315C-2 Hydraulics and Pneumatics (◆)</li> <li>• ETM 2315C-3 Hydraulics and Pneumatics (◆)</li> <li>• ETM 2315C-4 Hydraulics and Pneumatics (◆)</li> </ul>	1cr.hr. 1 1 1 1 1 1 1 1 1 1 1 1 1 1	<ul style="list-style-type: none"> <li>• ETS 1540C-1 Ind. Applic. of PLCs and Robotics (◆) 1 cr.hr.</li> <li>• ETS 1540C-2 Ind. Applic. of PLCs and Robotics (◆)</li> <li>• ETS 1540C-3 Ind. Applic. of PLCs and Robotics (◆)</li> <li>• ETS 1535C-1 Automated Process Control (◆)</li> <li>• ETS 1535C-2 Automated Process Control (◆)</li> <li>• ETS 1535C-3 Automated Process Control (◆)</li> <li>• ETI 1181C-1 Quality Systems &amp; Workplace Dynamics</li> <li>• ETI 1181C-2 Quality Systems &amp; Workplace Dynamics</li> <li>• ETS 1539C-1 Instrumentation Systems Safety</li> <li>• ETS 1539C-2 Instrumentation Systems Safety</li> <li>• ETS 1539C-3 Instrumentation Systems Safety</li> <li>• ETI 1949 Manufacturing Internship</li> <li>• ETI 1931 Special Topics in Modern Manufacturing</li> <li>• MAN 2500 Operations Management</li> <li>• MAC 2233 Applied Calculus I</li> <li>• CGS 1510C Spreadsheet Fundamentals</li> <li>• CGS 1061C Intro to Computers</li> <li>• ENC 2210 Technical Writing</li> </ul>





# Course Resources

## Unit Outline

- Objectives
- Competencies
- Key Terms

## Course Structure

- 1 Credit Hour (Unit)
- 3 Modules (typical)
  - Online theory
  - Hands-on practical
  - Module Quiz
- Unit Assessment / Exam

## Module Study Guide

1. Read textbook pages
2. View video
3. Perform Lab activities
4. Complete worksheet(s)
5. View multimedia materials
  - a. Learning Objects
  - b. Circuit Challenge
  - c. MultiSim
6. Demonstration
7. Discussion Board
8. Last assignment - Take examination

(Desire2Learn LMS)





# How does this format work?





# How does this format work?

Jesse Video-30 Seconds

# Policies

- 5 Week Window for individual course (1 cr.hr.) completion
  - Open Exit becomes Early Exit (OEEE)
  - Designed to deal with student procrastination
- Finishing Early
  - Grades Roll Nightly
  - Students can register for the next course(s) after 24 hours
- Standard penalties for not completing courses



# Outcomes and Progress

Successes

Student Outcomes

Challenges

What's next



# Current ET-OEEE Profile (2015-16)

## Student Enrollment

- 142 students enrolled with ET Program Objective
- 62 students enrolled in technical courses

## Age

- 43.8% (<20), 20.8% (20-24), 14.6% (25-29), 18.8% (30-39), 50+ (2.1%)

## Ethnicity

- 55.6% (White), 22.5% (Hispanic), 13.4% (Black), 2.1% (Multi), 2.1% (Asian), 2.8% (Not Reported), 1.4% (American Indian)

## Gender

- 7.0% (Female), 92.3% (Male)

## Financial Support

- 45.8% receive aid, X % are awarded veterans benefits



# Program Completion and Trends (2015-16)

## Course Enrollment information

- Mean-3.6 Technical Credits
- Mean- 12.3 Other Credits
- Mean- 5.2 Dev Ed Credits
- 35% of Engineering Technology students still enrolled after 3 terms

## Time to course completion

- Mean- Course Duration 4 weeks (1 credit)

## Course success

- Mean- GPA across courses 2.43

## Program Completion

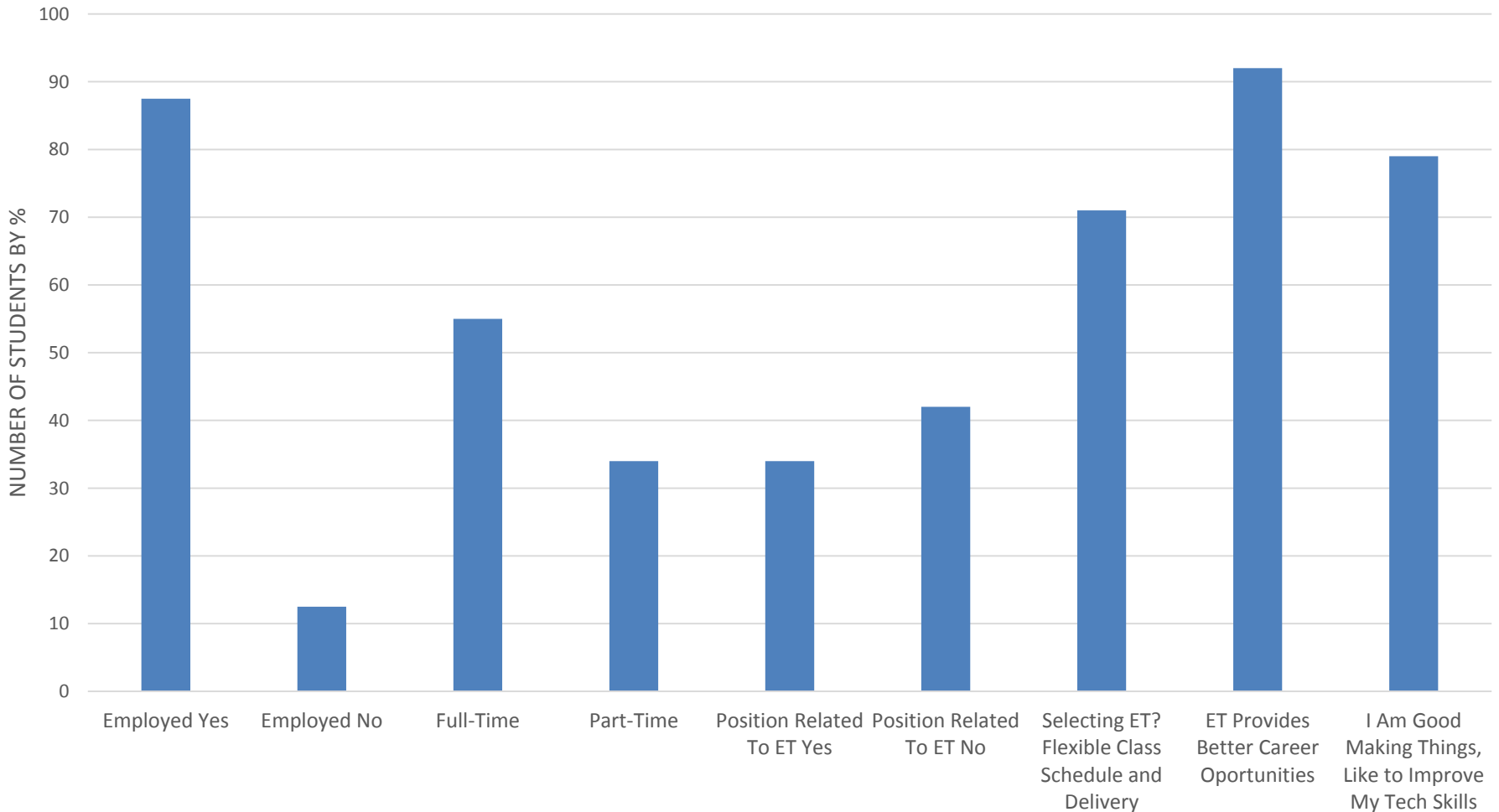
- 14 students completed the program
- 9 students (64%) complete within 3 terms\*

*\*Includes 2013 (prior to program data)*



# Who are Polk State College ET students....

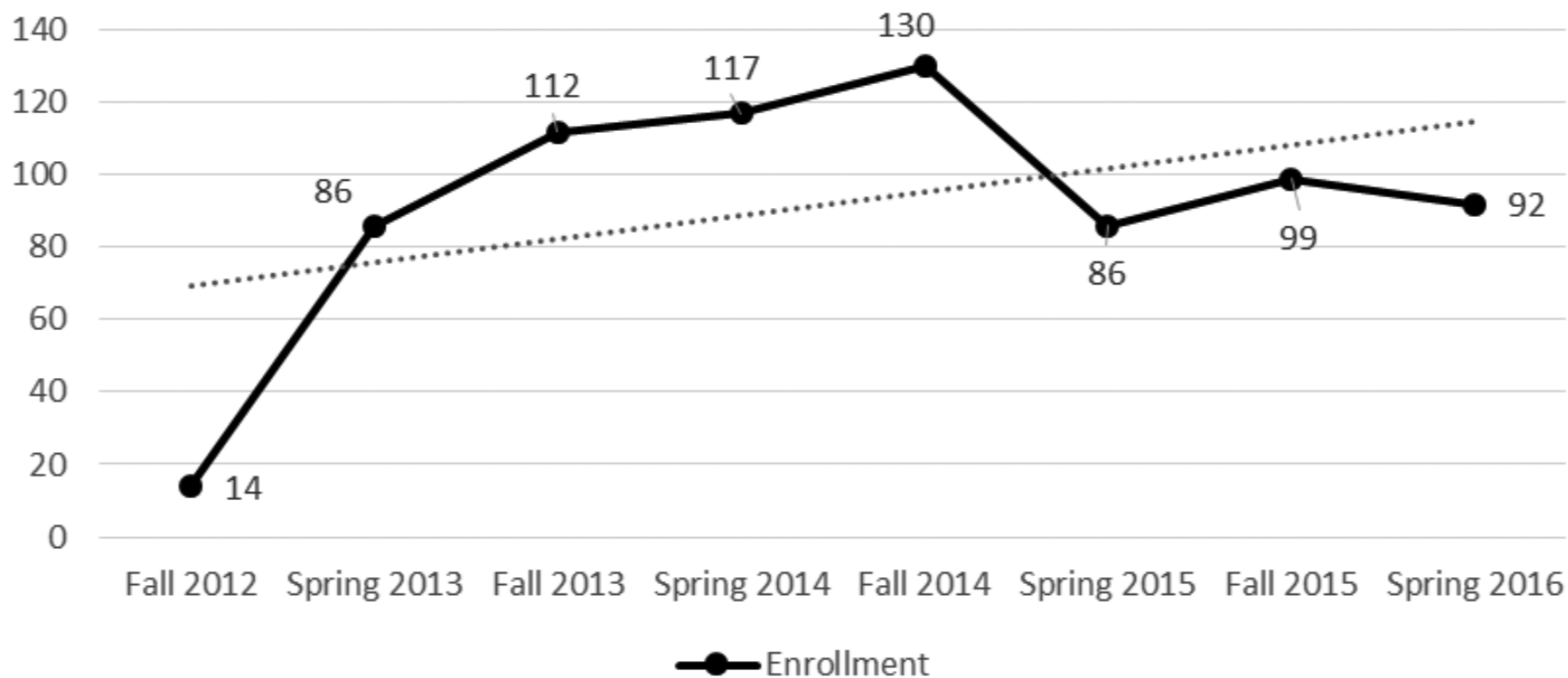
WORFORCE DATA UPON PROGRAM ENTRY ENGINEERING TECHNOLOGY





# Successes: Student Enrollment

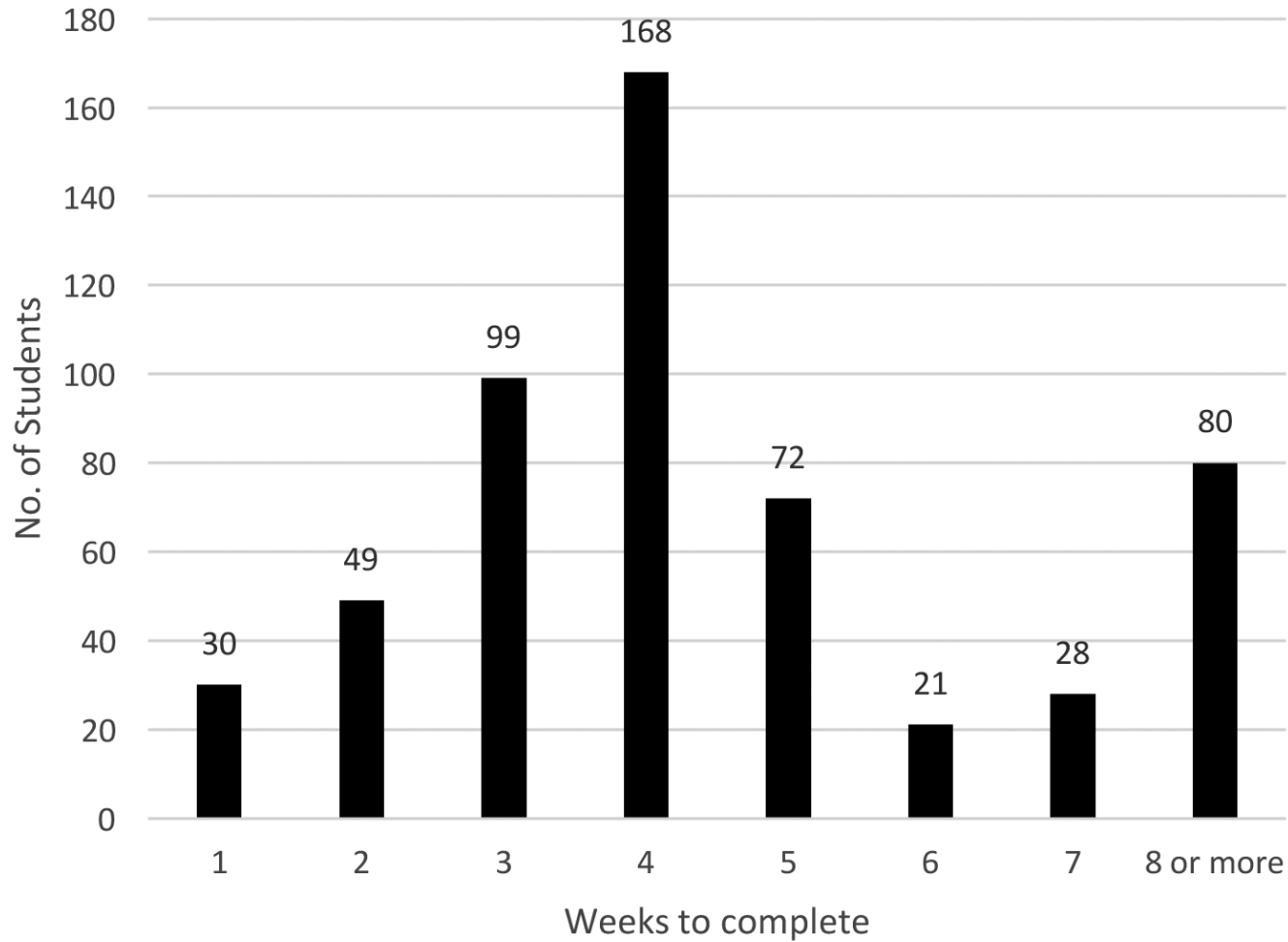
## Engineering Technology







# Successes: Acceleration



Mean completion time for a 1 cr.hr. course



# Challenges: Students

- No structured lectures
- Undisciplined learners (procrastination)
- Group learners
  - Encourage collaboration
- Camaraderie
- Comfort with virtual discussions



# Challenges: Students

Tammie- 30 Seconds



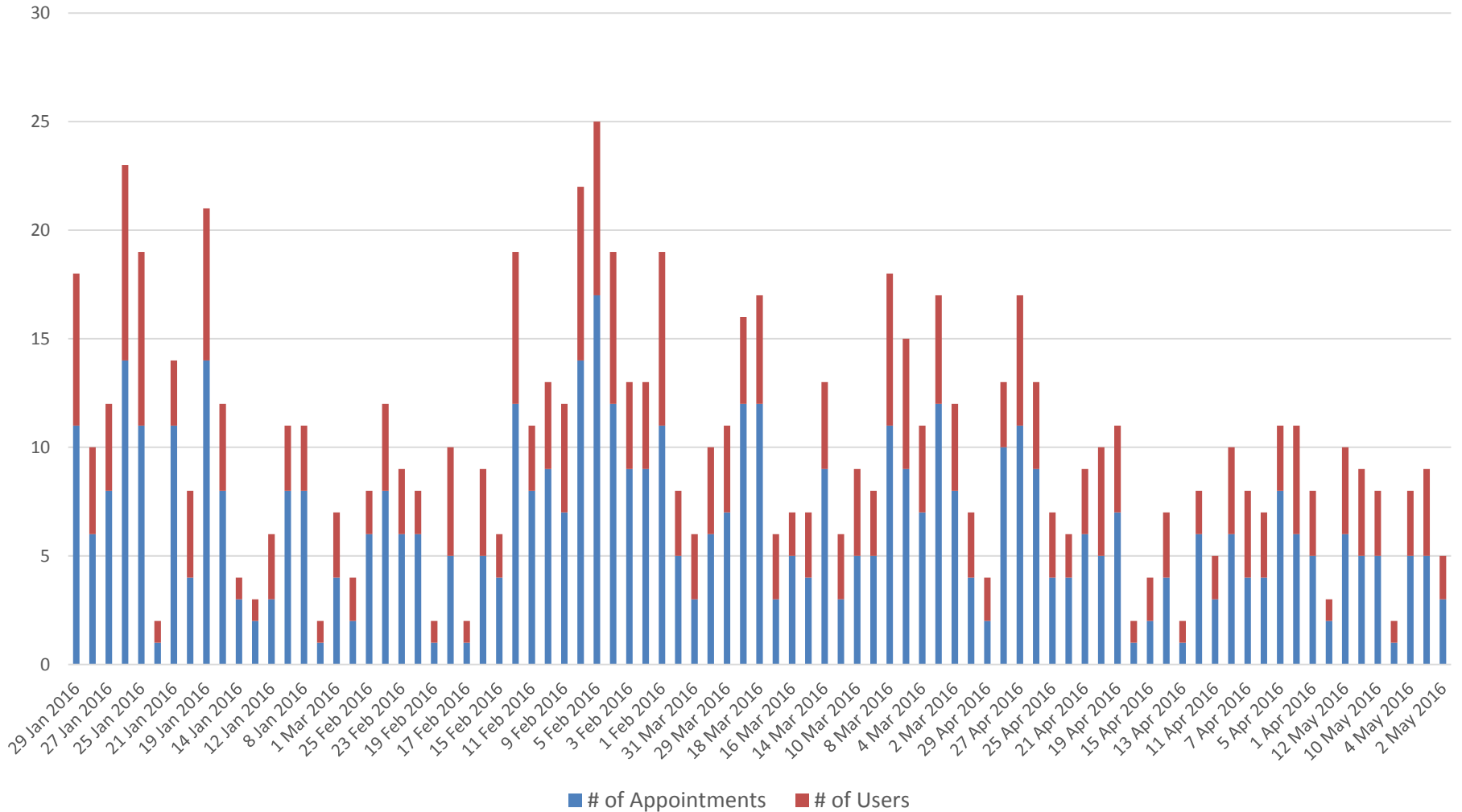
# Challenges: Instructors

- New loading model due to open lab & no scheduled courses
- Required to know all course content (mitigated by online scheduling system)
- Course development & labs take longer to create
- Poorly written courses have a large impact (rough carpenter vs. finish carpenter)
- Asynchronous Student Monitoring
- Turn around on EVERYTHING must be quicker



# Student Appointments: 2014-2015

## Appointy Report of Lab Usage Spring, 2016





# Challenges: Administration

- **Management**
  - Total Acceptance Necessary
  - Not Understanding the Operation / Complexity
  - Wide Areas of Impact
- **Systems**
  - Registration - Personal/Individualized unique dates
  - Financial Aid [Member of the DOE: Experimental Sites]
    - Personal/Individualized unique calculations based on start data
    - Complex and manual tracking (FA and instructor)
    - [US-DOE Reference Guide for those in experiments](#)
  - Veterans' Benefits
    - VA benefits have same challenges/impacts on BAH benefit
  - Advising – Greater faculty responsibility

# Accreditation

## Southern Association of Colleges and Schools Commission on Colleges

### *Initial Issues*

- Unclear definitions
- Federal approval requirements with no direction
- Expressed concerns
  - Instructor student interaction
  - Content/competency articulations
  - Time/credit equivalents to degree award (25% rule)

### *Current Status*

- [Policy statement](#)
  - [Experimental Sites guidelines](#)
    - [Screening Form](#)
  - Program approval submissions
    - CBE Design and Implementation Documentation

*We are Polk.*<sup>TM</sup>



# Successes: Things Accomplished

- Shifted to 1 credit hour OEEE in Fall 2014
  - Offered 22 of the 1 cr.hr. Program Courses
- Shifted advising/mentoring to program faculty
- Added a registration hold that had to be cleared by the program
- Financial Aid & Veterans Benefits determination & administration were time consuming and complex
- Bookstore
- OEEE rolled across the semester break into Spring 2015
  - Offered all 42 1 cr.hr. Program Courses
- Registration programming issues continued to be refined







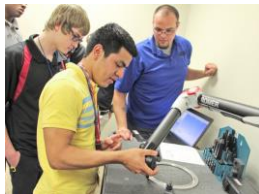
Jay Creasy, President  
JCMI / Quality Aerospace

# Successes: Industry Feedback

We believe that one of our most important assets is our highly skilled workforce. But finding workers with the advanced manufacturing skills needed in this industry is not easy...

...the OEEE Engineering Technology program addresses the need for employees with the technological skills to operate, maintain, and repair complex manufacturing equipment while providing a format that is more accessible to the working learner, allows for self-paced learning, and shifts the instructor/student relationship to one of mentoring rather than lecture.

Based on these tenets, we would encourage other colleges with technical program to explore competency-based student-centered learning models.





# U.S. Dept. of Educ. – ExSites

- Experimental Sites Initiatives
- Competency Based Education ExSites:

American Sentinel University	Colorado State University - Global Campus	Ivy Tech Community College	Mount Washington College	Richard Bland College	University of Louisville
Austin Community College District	Danville Community College	Jefferson Community and Technical College	National American University	Rio Salado College	University of New England
Big Sandy Community and Technical College	Davis Applied Technology College	Jones County Junior College	Northern Arizona University	Salt Lake Community College	University of Phoenix
Brandman University	El Centro College	Kaplan University	Northern Essex Community College	Somerset Community College	University of Wisconsin Colleges
Broward College	Elizabethtown Community and Technical College	Lincoln Land Community College	Northern Virginia Community College	Southern New Hampshire University	University of Wisconsin-Milwaukee
Bryant & Stratton College	Fielding Graduate University	Lipscomb University	Polk State College	The New School	West Kentucky Community and Technical College
Capella University	Francis Tuttle Tech Center	Miami Dade College	Rasmussen College	Trident University International	Western Kentucky University
Central Arizona College	Indiana Wesleyan University	Monroe Community College			

# What's Next?



- Online lab simulations
- General ed CBE course options
- Prior learning assessment upon program entry
- Mastery thresholds
- Program expansion, cost sharing for labs, further program distribution
- Developmental education concurrent CBE courses

*We are Polk.*<sup>TM</sup>



# The Team

- Dr. Eric Roe, Ph.D. – P.I.
- Terry Bartelt – Co-PI
- Dr. Naomi Boyer – Co-PI
- John Small – Co-PI
  
- Robert Frank – Project Manager / Lead Instructor / Curriculum Dev.
- Lara Sharp – Project Coordinator / Instructor / Curriculum & Lab Dev.
- Jonathan Little – Project Coordinator / Lab Assistant
- Dr. Christopher Schilling – Adjunct Instructor / Curriculum & Lab Dev.
- Kathy Bucklew – Registrar / Director of Student Enrollment Services
- Marcia Conliffe – Director of Student Financial Services
- Patricia Jones – District Dean of Academic Affairs
- Donald Painter – Dean of Academic Affairs



National  
Science  
Foundation

Funded, in part, by a grant from the  
National Science Foundation.  
DUE-0501626

# Upcoming TLT Sessions

## **July 19, 2016 at 2:30 pm – Reverse Transfer and Articulation: Strategies for Policy and Implementation**

Lexi Anderson, Ed.D., Policy Analyst, Education Commission of the States  
Carl Einhaus, Director of Student Affairs, Colorado Department of Higher Education

## **August 16, 2016 at 2:30 pm – Classroom Safety and Behavior Management**

Dr. Christopher Hall, Dean of Business and Public Service, Central Carolina Technical College

## **September 20, 2016 at 2:30 pm – Free Educational Resources from SCETV**

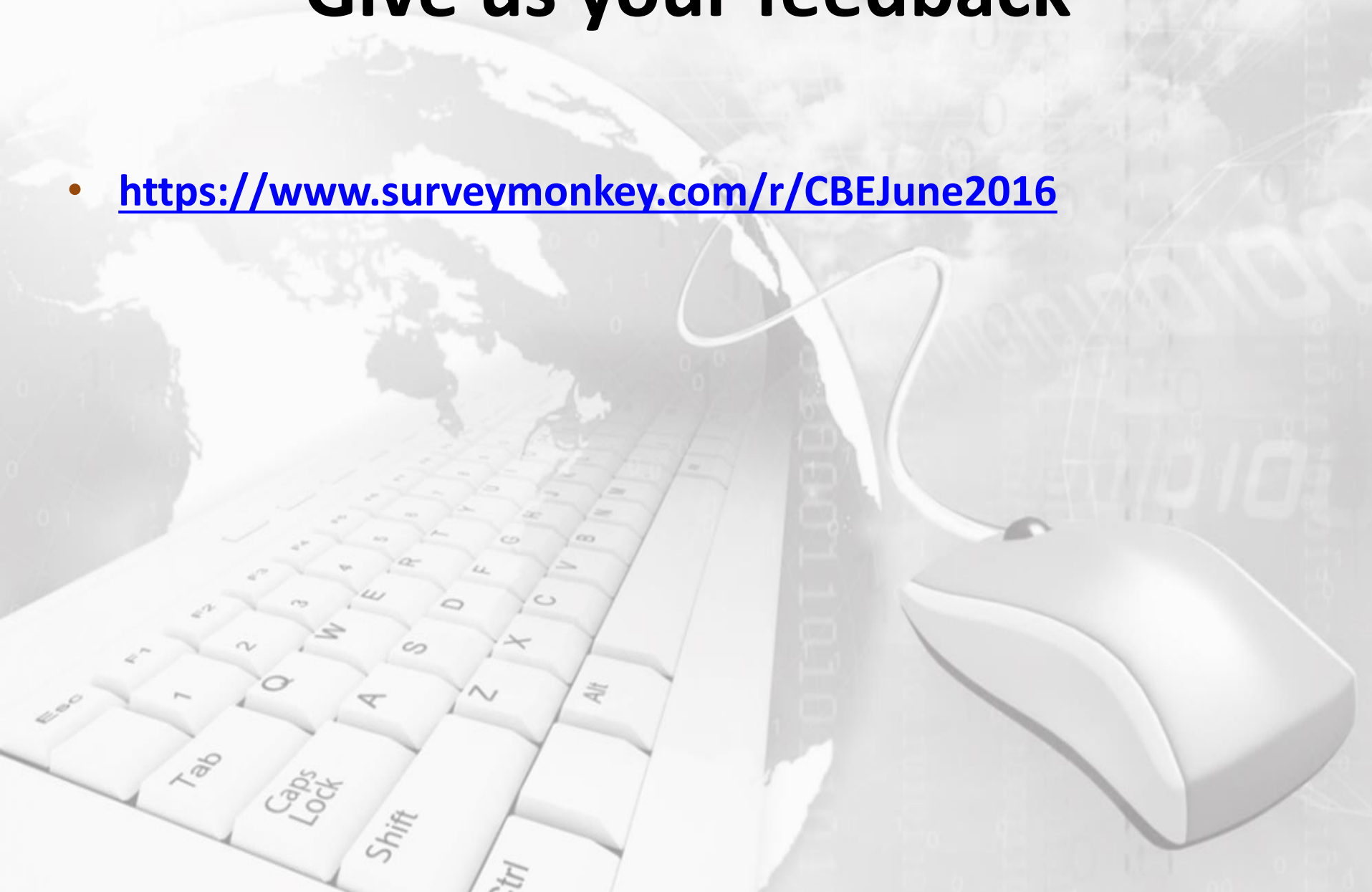
Donna Thompson, Educational Technology Instructor, SC Educational Television (SCETV)

[www.sctechsystem.edu/tlt](http://www.sctechsystem.edu/tlt)



# Give us your feedback

- <https://www.surveymonkey.com/r/CBEJune2016>



## Questions for Dr. Naomi Boyer, June 2016 TLT Session

### Questions Submitted by Participants:

1. Does the presenter believe about rubrics being used to evaluate competency? What other methods can be used? *[Challenges: Instructors- Slide 34]*
2. What significant changes have been encountered in competency-based education in the past twenty-five years? *[Our definitions and assumptions-Slide 5, basic overview]*
3. What is it? How do you implement lab work with limited resources in a hybrid class? *[Our definitions and assumptions-Slide 5, The shift to CBE-slide 6, Non-Term/Open lab- Slide 19]*
4. How do we measure competency? *[Open dialogue at end; Assessment comments on Challenges: Instructors-slide 34, Engineering Tech-Adv.Mfg- slide 16]*
5. No specific questions at this time. Interested in seeing how CBE programs are structured and managed. *[Polk State College format included in the presentation]*
6. No question at the moment; just what to know about competency-based education and its effectiveness. *[Polk State College format included in the presentation]*
7. How does this work with the requirement to issue grades in a semester-based format? *[How does it work-Slides 18-25]*
8. Have there been any significant shifts and/or changes in our educational policies to meet the needs of students transitioning from being a high school graduate to being prepared for college and/or a career? *[Challenges-Slides 32-38]*
9. What tools or metrics are used to measure students' competency? *[Instructor Challenges-Slide 34]*
10. How is the student's class schedule arranged? Are there opportunities for work experience while enrolled? Are students involved in other aspects of college life, such as clubs? *[How does it work-Slides 18-25; Student challenges-slides 32]*
11. How does it work with the credit hour definition? *[42 x1 cr.hr. courses-slide 20 and modularizing courses-slide 21]*
12. SC Technical College policies and procedures - do they need to be updated? DOE and Financial Aid - how do we work around the rules that we all live by? What changes are coming based on the pilot projects that the DOE has been running with competency-based education in other states? *[Policies-Slide 25; Challenges-Administration- slide 36; US Dept of Ed ExSites-Slide 40]*
13. What is the new approach here? *[Open dialogue at the end. You tell me 😊]*

14. Integration of CBE into traditional educational frameworks and the challenges of providing appropriate resources needed to support such efforts. *[Challenges-Slides 32-38]*
15. Competency Based Education - How is it working for you? (Student feedback, College feedback). *[Current Data and Feedback- Slides 27-31]*
16. What are the best actions to implementing techniques? *[How does it work-Slides 18-25]*
17. What advantages and benefits has the school realized and what advantages and benefits have the students realized? *[Current Data and Feedback- Slides 27-31]*
18. I am heading up a task force to study flexibility. I want to find out what other colleges are doing to make their programs more flexible for students. *[How does it work-Slides 18-25]*
19. How do you apply this concept to any given course? Can it be applied to virtually ANY course? *[Next steps 41; How does it work-Slides 18-25]*
20. How does one define and quantify competency-based education? In closing, how does one sell "the art of competency-based education" to some students who are not interested in reading for pleasure? How does one encourage (some of our students) who are motivated by points and not the joy of learning? *[Open Dialogue; How does it work-Slides 18-25]*
21. My understanding is that competency-based strategies provide flexibility in the way that credit can be earned or awarded, and provide students with personalized learning opportunities. How then, is this accomplished with students who come from extremely diverse socio-economic backgrounds, who may not have yet experienced academic successes, but rather, have more experiences in failure? *[Open Dialogue; How does it work-Slides 18-25]*
22. How might it apply to my discipline of art history in particular and the teaching of humanities in general? *[How does it work-Slides 18-25]*
23. How can we use the competency-based education concept to encourage assignment collaborations between faculty and librarians? *[Challenges: Instructors- Slide 34]*