## Welcome!

#### FLATE INDUSTRIAL ADVISORY COMMITTEE

Meeting #34 Odessa, FL pharma uorks setting the pace of innovation

THURSDAY, MAY 12, 2016 4:30 – 7:00 PM 4:30 OVERVIEW & TOUR





FLATE IAC PharmaWorks May 2016

Tour of PharmaWorks and Overview -Peter Buczynsky, President

#### **Welcome Introduction of IAC Committee Members & Guests**

#### **FLATE Overview & Updates**

Educational Trends Engineering Technology Curriculum Framework Review FLATE Awards Industry and Associations Updates

Pasco Hernando State College- Engineering Technology update

#### **FLATE 2015 Evaluation Update**

**New Business and Open Forum** 

IAC meeting – September 8, 2016 – Sun Hydraulics, Sarasota

Wrap up and Adjournment



FLATE IAC PharmaWorks May 2016

#### Vísíon



FLATE will be Florida's leading resource for education and training expertise, leadership, projects, and services to promote and support the workforce in the high performance production and manufacturing community.

## Impact locally. Lead nationally.







FLATE IAC PharmaWorks May 2016

## **FLATE goals**

#### **GOAL 1.** To ensure that FLATE's mission is **sustained**.

**GOAL 2.** To implement a statewide unified **education system** for manufacturing that positions manufacturing education as a convergent curriculum that optimizes technician preparation in manufacturing and its enabling technologies.

**GOAL 3.** To provide an effective **outreach platform** for Florida's high school, community college, industry, and legislature to access information related to the requirements for and impact of manufacturing education.

**GOAL 4.** To present **professional development** opportunities for technical faculty to develop, refine or certify their knowledge base within manufacturing and/or its related enabling technologies and educational pedagogies.



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## **NSF Advanced Technological Education**

# ATE ENTERS www.atecenters.org

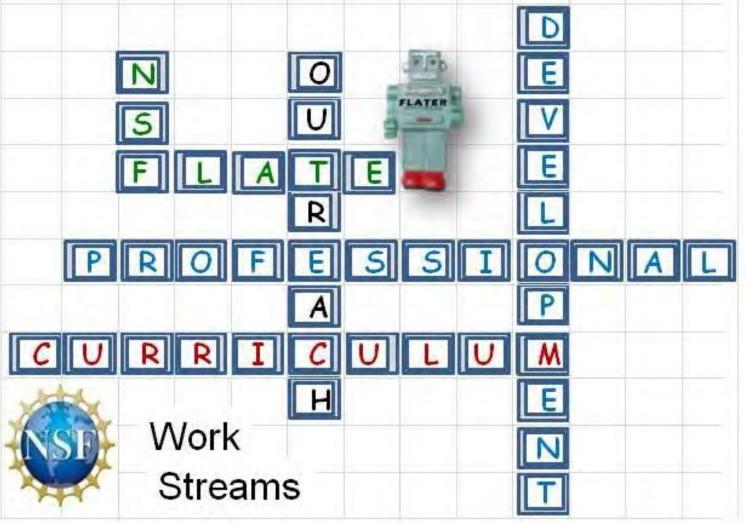
Partners with Industry for a new American Workforce



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#### FLATE Goals







FLATE IAC PharmaWorks May 2016





## **FLATE Updates**



FLATE IAC PharmaWorks May 2016





## **FLATE Updates**

- ET Degree updates
- 2016 ET & APT Curriculum Framework review NEED Industry!
- NIMS & AWS alignment to FLDOE Frameworks
- New Partnerships
- 2016 MFG DAY planning
- 2016 summer robotics /manufacturing camps and teacher PD



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## 2015 ET Degree College Network

current ET offering colleges
 starting ET in F-2015
 colleges being mentored

PSC NWFSC

CC

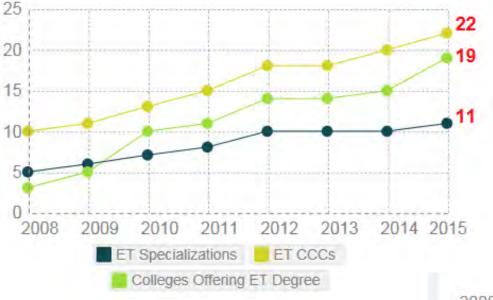
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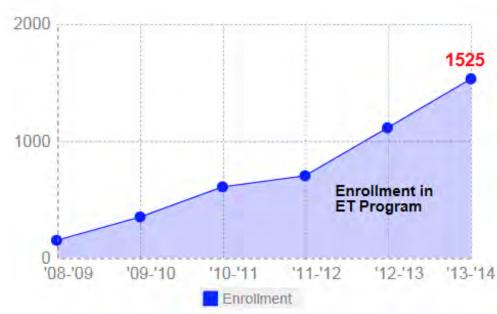




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#### Key Milestones 2008 - 2016







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Engineering

Degree

**Technology A.S.** 

#### ET Degree Updates



#### **A.S. Engineering Technology**



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FLATE Updates



# 2016 A.S. Engineering Technology & APT Curriculum Framework Reviews

#### **VERY IMPORTANT!!!**



- Legislatively mandated tri-annual review
- Managed by the Adult & Career Education Division of FLDOE
- Requires over 50% industry participants
- Updates KSAs (knowledge/skills/abilities) in the ET degree program)



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## **Sample Framework Document**

2014 – 2015 Florida Department of Education Student Performance Standards

| Program Title:  | Engineering Technology                      |
|-----------------|---|
| CIP Numbers:    | 1615000001                                  |
| Program Length: | 60 credit hours                             |
| SOC Code(s):    | 17-3023, 17-3026, 17-3027, 17-3029, 51-4012 |

## The AS degree requires the inclusion of a minimum of 15 credits of general education coursework according to SACS, and it must be transferable according to Rule 6A-14.030 (2), F.A.C. At the completion of this program, the student will be able to:

01.0 Demonstrate knowledge of industrial processes and materials properties--The student will be able to:

01.01 Demonstrate knowledge of current manufacturing processes.

01.02 Demonstrate knowledge of the use of current manufacturing machines, operating systems and mechanisms.

- 01.03 Estimate manpower needs and skills needed in assembly operations.
- 01.04 Demonstrate knowledge of the criteria for tool design, maintenance, procurement and handling.
- 01.05 Demonstrate knowledge of gage design, usage and limitations.
- 01.06 Analyze and recommend the usage of jigs and fixtures, including effectors and special grippers for automated systems.

01.07 Demonstrate knowledge of processes used to ensure that changes do not negatively impact production or product.

- 01.08 Demonstrate knowledge of production timing to ensure customer satisfaction and on-time delivery.
- 01.09 Demonstrate knowledge of time and motion to enhance productivity.
- 01.10 Make continuous adjustments to equipment and procedures that result in improved productivity.
- 01.11 Demonstrate knowledge of how raw materials are moved.
- 01.12 Setup or modify new equipment per engineering specifications and documentations.
- 01.13 Demonstrate an understanding of the importance and impact of routine maintenance of machines and equipment on operations.

## **Sample Framework Document**

2014 - 2015

Florida Department of Education

Student Performance Standards

2014 - 2015**Florida Department of Education Student Performance Standards** 

**Program Title: CIP Numbers: Program Length:** SOC Code(s):

Program Title: Engineering 161500000 CIP Numbers: 60 credit hc Program Length: 17-3023, 17

#### SOC Code(s): The AS degree requires the inclus 17-3029, 51-4012 according to SACS, and it must be completion of this program, the student will be able to:

01.0 Demonstrate knowledge of industrial processes and materials properties--The student will be able to:

01.01 Demonstrate knowledge of current manufacturing processes.

01.02 Demonstrate knowledge of the use of current manufacturing machines, operating systems and mechanisms.

- 01.03 Estimate manpower ner
- Demonstrate knowledge 01.04
- 01.05 Demonstrate knowledge 01.06

Analyze and recommen automated systems.

Demonstrate knowledge 01.07 or product.

- 01.08 Demonstrate knowledge
- 01.09 Demonstrate knowledge
- Make continuous adjust 01.10
- Demonstrate knowledge 01.11
- Setup or modify new ed 🗸 01.12
- Demonstrate an unders 01.13

equipment on operations.

Demonstrate knowledge ... Construct... Prepare... Set up equipment... Analyze...

Engineering Technology

17-3023, 17-3026, 17-3027,

uction

and

У.

1615000001

60 credit hours

## Sample Framework <u>REVIEW</u> Document

| K | U | D | <u>S</u> | B | STANDARDS AND BENCHMARKS   | <u>COMMENTS</u> |
|---|---|---|----------|---|--|-----------------|
|   |   |   |          |   | 12.0 Operate, troubleshoot, and maintain pneumatic,<br>hydraulic and electromechanical components<br>and/or systems – The student will be able to: |                 |
|   |   |   |          |   | 12.01 Identify, classify and describe the function<br>of pneumatic, hydraulic and electrical<br>machines and components.                           |                 |
|   |   |   |          |   | 12.02 Construct flow diagrams and of pneumatic,<br>hydraulic, and electromechanical systems.   |                 |



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## Sample Framework <u>REVIEW</u> Document

| K | U            | D            | <u>S</u> | B | STANDARDS AND BENCHMARKS   | <u>COMMENTS</u>  |
|---|--------------|--------------|----------|---|--|--|
| 5 |              |              |          |   | 12.0 Operate, troubleshoot, and maintain pneumatic,<br>hydraulic and electromechanical components<br>and/or systems – The student will be able to: |  |
|   |              | $\checkmark$ | /        |   | 12.01 Identify, classify and describe the function<br>of pneumatic, hydraulic and electrical<br>machines and components.                           |  |
|   | $\checkmark$ |              |          |   | 12.02 Construct flow diagrams and of pneumatic,<br>hydraulic, and electromechanical systems.   | This needs clarifying – are they individual or integrated systems? |

K=Keep as is

U=Update per comment D=Delete (no longer relevant) S=New standard per comment B=new benchmark per comment



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#### FLATE New Partnerships



#### NIMS & AWS Credential Alignment Articulation Articulation WWW.flate.pbwiki.com

This page houses links to the new 2015 Florida Machining Technology Curriculum Frameworks for High School and PSAV hosted on the FDOE website. It also hosts the alignment and crosswalk of the Curriculum Frameworks standards and benchmarks to the skills in NIMS Machining Level 1 & Level 2 credentials.

ONDARY LEVEL





Link to FDOE Manufacturing cluster home page

| HNOTES to Educators and Users of the Alignments and | Crosswalk Documents |
|---|---------------------|
| FLORIDA SECONDARY LEVEL                             | FLORIDA POST SEC    |
|   |                     |

| ALIGNMENTS/CROSSWALKS                       | ALIGNMENTS/CROSSWALKS                              |
|---|--|
| Link to current FLDOE Secondary Machining   | Link to current FLDOE Post Secondary Machining     |
| Technology Framework                        | Technology Framework                               |
| Secondary Machining Technology Framework    | Post Secondary Machining Technology Framework,     |
| alignment and crosswalk to NIMS credentials | elignment and crosswalk to NIMS credentials        |
| Secondary "High Level" Machining Tech-NIMS  | Bost Secondary, "High Level", Machining, Tech-NIMS |
| Alignment Galignment summary!               | Alignment (alignment summary)                      |
|   |  |

#### FLORIDA A.S. LEVEL ALIGNMENTS/CROSSWALKS

| Link to current FLDOE AS ET Degree Frameworks (w Mechanical Fabrication & Design specialization)   |  |
|--|--|
| ET Degree Mechanical Fabrication and Design Specialization alignment and crosswalk to NIMS credentials   |  |
| Links to current FLDOE Frameworks for College Credit Certificates (CCCs) under Mechanical Fabricatio<br>and Design Specialization:<br>CNC Machinist / Fabricator (CCC - 0648051002)<br>CNC Machinist Operator / Programmer (CCC - 0615080503)<br>Mechanical Designer and Programmer (CCC - 0615080503) |  |
| CCC-NIMS alignment files:<br>CNC Machinist Operator CCC alignment and crosswelk to NIMS credentials<br>DNC Machinist Fabricates CCC alignment and crosswelk to NIMS credentials  |  |

Mechanical Designer and Programmer CCC alignment and crosswalk to NIMS credentials

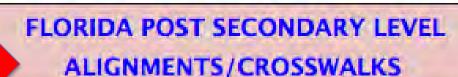
Torida AS ET Degree "High Level" Alignment Jalignment summary)

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FLORIDA CAPE FUNDING LISTS and STATEWIDE ARTICULATIONS

FLDOE Website for CAPE Certification Lists (Secondary and post-secondary) and statewide articulations

Impact Florida, Lead Nationally,



Link to current FLDOE Post Secondary Machining Technology Framework

Post Secondary Machining Technology Framework alignment and crosswalk to NIMS credentials

Post Secondary "High Level" Machining Tech-NIMS Alignment (alignment summary)

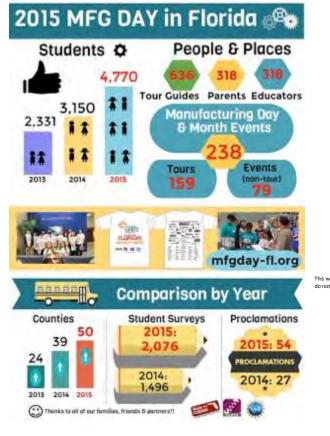
> FLATE IAC PharmaWorks May 2016



#### FLATE Updates – Manufacturing Day

#### 2016 MFG DAY/Month in FLORIDAL





| MFG DAY 2015<br>Student Industry Tour Date: October<br>Tour Site Location/S: Metal Essence<br>County: Seminole<br>Name of School/s Participating: Lake Mary H:<br>Total Number of Students: 16 | s     |          |          |      |       |       |
|--|-------|----------|----------|------|-------|-------|
|  | Yes   |          |          | No   | Total | Total |
| Post Tour Survey Questions   | Girls | Yes Boys | No Girls | Boys | Yes   | No    |
| 1. I was considering a career in advanced manufacturing before the tour.   | 0     | 9        | 1        | 6    | 9     | 7     |
| 2. My teachers have talked about advanced manufacturing with my class.   | 1     | 15       | 0        | 0    | 16    | 0     |
| 3. Today I learned about technologies used in advanced manufacturing industries and manufactured<br>products.  | 1     | 15       | 0        | 0    | 16    | 0     |
| 4. This tour gave me new information about careers in advanced manufacturing.  | 1     | 15       | 0        | 0    | 16    | 0     |
| 5. The tour helped me understand how STEM subjects (science, technology, engineering and math) are put<br>to work in advanced manufacturing industries.  | 1     | 14       | 0        | 1    | 15    | 1     |
| 6. I would recommend that other students have the opportunity of this tour.  | 1     | 15       | 0        | 0    | 16    | 0     |
| 7. I am now considering a career in advanced manufacturing.  | 1     | 13       | 0        | 2    | 14    | 2     |
| Percentage of Total Responses  | 6     | 96       | 1        | 9    | 102   | 10    |

Advanced Manufacturing Perception Impact - Question Comparison for 1. & 7. +55.56% Change for both boys & girls considering a career in advanced manufacturing before and after the tour.

|            |        | Male:  | 15        | Female: | 1      |      |        |          |
|------------|--------|--------|-----------|---------|--------|------|--------|----------|
| Ethnicity: | Asian: | Black: | Hispanic: | White:  | Other: |      |        |          |
|            | 0      | 2      | 10        | 4       | 0      |      |        |          |
| Grade:     | 6th    | 7th    | 8th       | 9th     | 10th   | 11th | 12th   |          |
|            | 0      | 0      | 0         | 6       | 6      | 4    | 0      |          |
|            | Ĩ      | Ma     | nuf       | act     | tur    | in   | Ig     | Day      |
|            |        |        |           |         |        |      | (1975) | <b>.</b> |

This work is funded under grant DUEH 1204751 from the National Science Foundation Advanced Technological Education (ATE) program. Opinions and findings expressed in do not necessarily reflect the views of the National Science Foundation Advanced Technological Education (ATE) program. Opinions and findings expressed in Foundation and findings expressed in Feedback Shows Huge Impact"









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#### FLATE Updates – Manufacturing Day

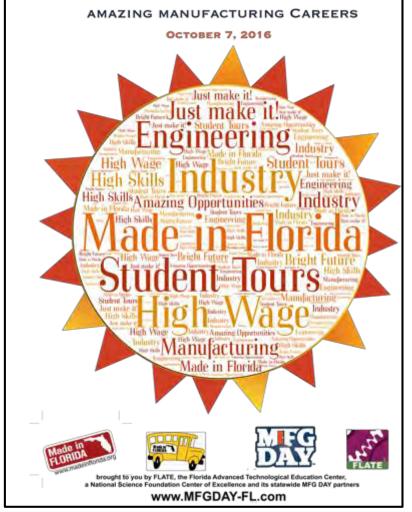




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#### **Just Make It**



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# FLATE Updates

@ HCC Brandon

Intro Girls Intro Boys & Girls Intermediate High Schoolengineering



2015 Locations:

Ocala Sarasota Palm Beach Crystal River Pensacola Lake City Jacksonville Leesburg



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#### FLATE Updates – International Exchanges



FLATER

## International Internship Program

#### Supporting Engineering Technology & Manufacturing in Florida!

#### **PROGRAM UPDATES**

- 6-12 months Internship --100% financed by the Basque Government (Spain).
- <u>April 2016</u>: Host companies complete placement forms for "Global Training" internships.
- **September 2016**: Selection of candidates by GT.
- October 2016: Matching process & interviews by FL Host company. Complete paper work (visa forms)
- **Nov-Dec. 2016**: Logistics, housing etc.
- January, 2017: Internships begin









FLA Impact Florida. Lead Nationally.

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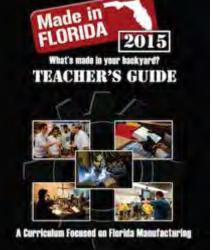
FLATE Educational Resources

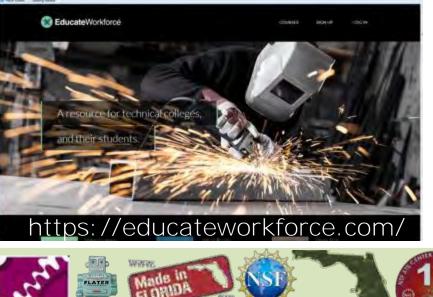
#### NEW!!

### Manufacturing Educational Resources

#### "Made in Florida" 2015 Video Teacher Guide

#### "Exploring Advanced Manufacturing" FREE 6 module online course, e-book & NEW TEACHER LESSON PLAN





Impact Florida. Lead Nationally.



Exploring Advanced Manufacturing 6 Modules

#### In partnership with





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FLATE Educational Resources



#### **NEW!!** Women in Manufacturing Video





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## Industry & Association Updates

#### Tina Brudnicki



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Association Updates



## Pasco Hernando State College - ET Degree update

Ed Goolsby



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## FLATE Evaluation Highlights

#### **May 2016**

#### **Stakeholder Survey Responses - Educators/Administrators**

| Survey Statement   | у    | %<br>ron<br>Agr | ee    |       |      | ree   | %<br>Disag |       |        | %<br>Strongl<br>y<br>Disagr<br>ee |      | ngl<br>gr | Appli<br>cable |       | %<br>No<br>t<br>Tri<br>ed | % Not<br>Familiar |         | ar      |
|--|------|-----------------|-------|-------|------|-------|------------|-------|--------|-----------------------------------|------|-----------|----------------|-------|---------------------------|-------------------|---------|---------|
|  | Т    | hese            | e per | centa | ages | belov | w are      | of th | e tota | l res                             | pono | dents     | s who          | ) ans | wered                     | the q             | uestic  | งท      |
|  | 2011 | 2013            | 2015  | 2011  | 2013 | 2015  | 2011       | 2013  | 2015   | 2011                              | 2013 | 2015      | 2011           | 2013  | 2015                      | 2011              | 2013    | 2015    |
| I have easy access to<br>FLATE's staff and its<br>products.                                  | 41   | 35              | 43    | 50    | 45   | 42    | 1          | 6     | 1      | 0                                 | 1    | 0         | 8              | 13    | 15                        | N/<br>A           | N/<br>A | N/<br>A |
| FLATE staff have helped<br>me whenever I<br>requested it.                                    | 30   | 37              | 52    | 36    | 27   | 22    | 1          | 2     | 2      | 3                                 | 0    | 0         | 22             | 25    | 24                        | 8                 | 10      | N/<br>A |
| FLATE's "Made in<br>Florida" outreach<br>materials and/or<br>activities have assisted<br>me. | 19   | 21              | 32    | 38    | 30   | 41    | 3          | 5     | 0      | 1                                 | 1    | 0         | 30             | 25    | 22                        | 10                | 18      | 5       |

#### **Stakeholder Survey Responses - Others**

| Survey Statement   |      | %<br>ron<br>Agr |       | %    | Agı  | 'ee   | Dis   | %<br>sag | ree    |       | %<br>ror<br>y<br>saç<br>e |       | N<br>Ap | %<br>ot<br>opli<br>ble | %<br>No<br>t<br>Tri<br>ed |         | % No<br>Imili |         |
|--|------|-----------------|-------|------|------|-------|-------|----------|--------|-------|---------------------------|-------|---------|------------------------|---------------------------|---------|---------------|---------|
|  | ٦    | hese            | e per | cent | ages | belov | w are | of th    | e tota | l res | ponc                      | dents | s who   | ansv                   | vered                     | the qu  | Jestio        | n       |
|  | 2011 | 2013            | 2015  | 2011 | 2013 | 2015  | 2011  | 2013     | 2015   | 2011  | 2013                      | 2015  | 2011    | 2013                   | 2015                      | 2011    | 2013          | 2015    |
| I have easy access to<br>FLATE's staff and its<br>products.                                  | 41   | 35              | 58    | 50   | 45   | 36    | 1     | 6        | 2      | 0     | 1                         | 0     | 8       | 13                     | 5                         | N/<br>A | N/<br>A       | N/<br>A |
| FLATE staff have helped<br>me whenever I<br>requested it.                                    | 30   | 37              | 55    | 36   | 27   | 33    | 1     | 2        | 0      | 3     | 0                         | 0     | 22      | 25                     | 12                        | 8       | 10            | N/<br>A |
| FLATE's "Made in<br>Florida" outreach<br>materials and/or<br>activities have assisted<br>me. | 19   | 21              | 27    | 38   | 30   | 41    | 3     | 5        | 5      | 1     | 1                         | 0     | 30      | 25                     | 26                        | 10      | 18            | 2       |

#### **Stakeholder Survey Responses - Educators/Administrators**

| Survey Statement   |      | %<br>ron<br>Agr |       | %    | Agı  | ree  | %<br>Disagree |       |        | %<br>Strongl<br>y<br>Disagre<br>e |      |       | %<br>Not<br>Appli<br>cable |      | %<br>No<br>t<br>Tri<br>ed | % Not<br>Familiar |        |         |
|--|------|-----------------|-------|------|------|------|---------------|-------|--------|-----------------------------------|------|-------|----------------------------|------|---------------------------|-------------------|--------|---------|
|  | T    | These           | e per | cent | ages | belo | w are         | of th | e tota | l res                             | ponc | lents | who                        | ans\ | wered                     | the q             | uestic | n       |
|  | 2011 | 2013            | 2015  | 2011 | 2013 | 2015 | 2011          | 2013  | 2015   | 2011                              | 2013 | 2015  | 2011                       | 2013 | 2015                      | 2011              | 2013   | 2015    |
| Professional<br>development initiatives<br>provided by FLATE have<br>assisted me in my work. | 29   | 25              | 35    | 30   | 32   | 31   | 5             | 3     | 0      | 0                                 | 0    | 1     | 30                         | 28   | N/A                       | 7                 | 13     | N/<br>A |
| Curriculum initiatives<br>provided by FLATE have<br>assisted me.                             | 24   | 21              | 34    | 33   | 28   | 37   | 4             | 3     | 4      | 0                                 | 0    | 2     | 29                         | 30   | N/A                       | 10                | 17     | 24      |
| Curriculum materials<br>provided by FLATE have<br>assisted me.                               | 24   | 20              | 31    | 40   | 31   | 36   | 5             | 4     | 3      | 0                                 | 0    | 1     | 21                         | 30   | N/A                       | 9                 | 15     | 30      |

#### **Stakeholder Survey Responses - Others**

| Survey Statement   |      | %<br>ron<br>Agr |       | %    | Agı  | 'ee   | Dis   | %<br>sag | ree    |       | %<br>ror<br>y<br>saç<br>e |       | N<br>Ap | %<br>ot<br>opli<br>ble | %<br>No<br>t<br>Tri<br>ed |         | % No<br>Imili |         |
|--|------|-----------------|-------|------|------|-------|-------|----------|--------|-------|---------------------------|-------|---------|------------------------|---------------------------|---------|---------------|---------|
|  | ٦    | hese            | e per | cent | ages | belov | w are | of th    | e tota | l res | pond                      | dents | s who   | ansv                   | vered                     | the qu  | Jestio        | n       |
|  | 2011 | 2013            | 2015  | 2011 | 2013 | 2015  | 2011  | 2013     | 2015   | 2011  | 2013                      | 2015  | 2011    | 2013                   | 2015                      | 2011    | 2013          | 2015    |
| I have easy access to<br>FLATE's staff and its<br>products.                                  | 41   | 35              | 58    | 50   | 45   | 36    | 1     | 6        | 2      | 0     | 1                         | 0     | 8       | 13                     | 5                         | N/<br>A | N/<br>A       | N/<br>A |
| FLATE staff have helped<br>me whenever I<br>requested it.                                    | 30   | 37              | 55    | 36   | 27   | 33    | 1     | 2        | 0      | 3     | 0                         | 0     | 22      | 25                     | 12                        | 8       | 10            | N/<br>A |
| FLATE's "Made in<br>Florida" outreach<br>materials and/or<br>activities have assisted<br>me. | 19   | 21              | 27    | 38   | 30   | 41    | 3     | 5        | 5      | 1     | 1                         | 0     | 30      | 25                     | 26                        | 10      | 18            | 2       |

**Stakeholder Survey Responses** 

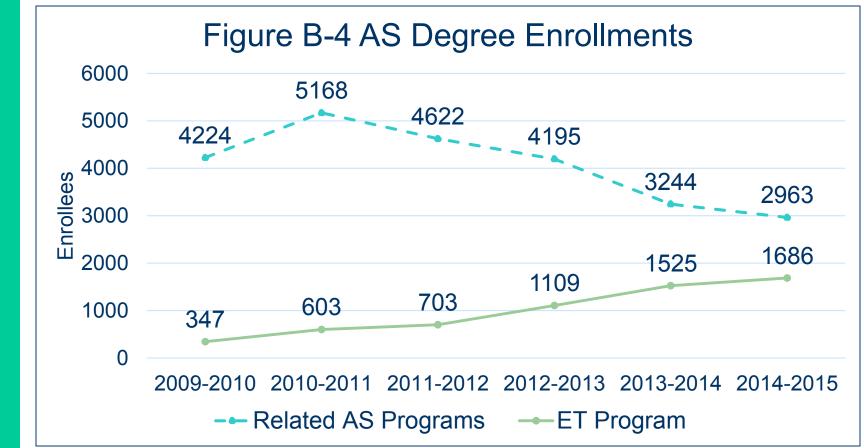
- What can FLATE change to improve...? (79 of 194)
  - About 50% of the commenters said "nothing"
  - The remainder included: More geographic diversity in outreach; More school tours; More formal sharing
- What new initiatives, activities, products could FLATE develop? (63)
  -About 25% of the commenters said "nothing"
  - The remainder included: More engagement of middle/elementary students and parents; More 3D printing activity; Best practice sharing with teachers

## **Goal 2 Measures: Effectiveness of Curriculum Development Efforts**

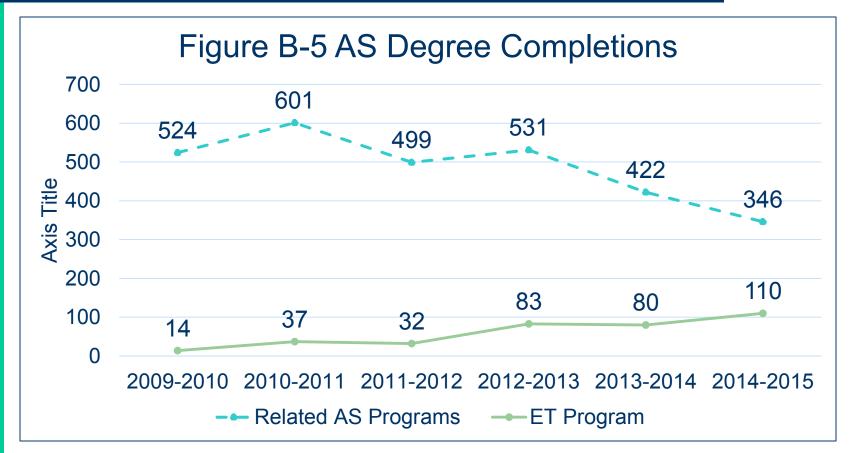
**Table B-1 Academic Year – ET Degree Program Adoptions** 

| Academic Year | Number of Colleges |  |  |
|---------------|--------------------|--|--|
| 2007-2008     | 3                  |  |  |
| 2008-2009     | 5                  |  |  |
| 2009-2010     | 10                 |  |  |
| 2010-2011     | 11                 |  |  |
| 2011-2012     | 13                 |  |  |
| 2012-2013     | 13                 |  |  |
| 2013-2014     | 14                 |  |  |
| 2014-2015     | 19                 |  |  |

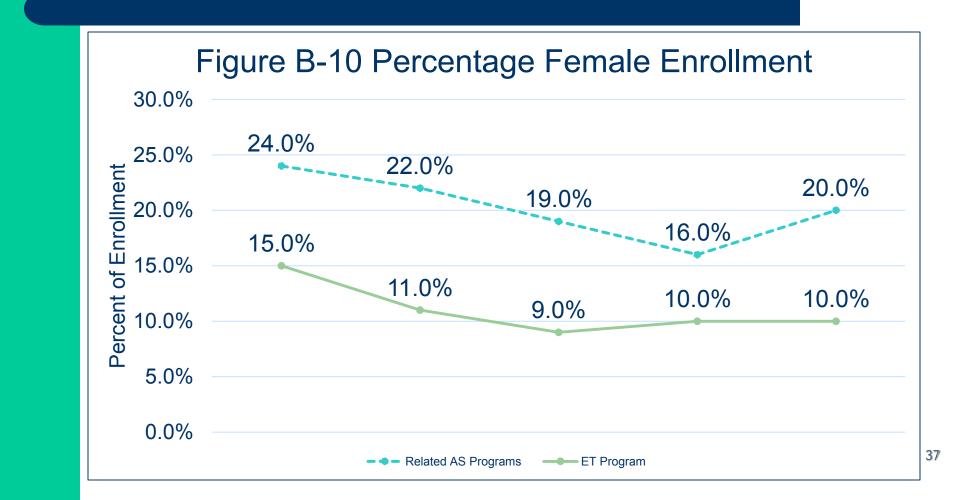
## **Goal 2 Measures: Effectiveness of Curiculum Development Efforts**



## **Goal 2 Measures: Effectiveness of Curiculum Development Efforts**



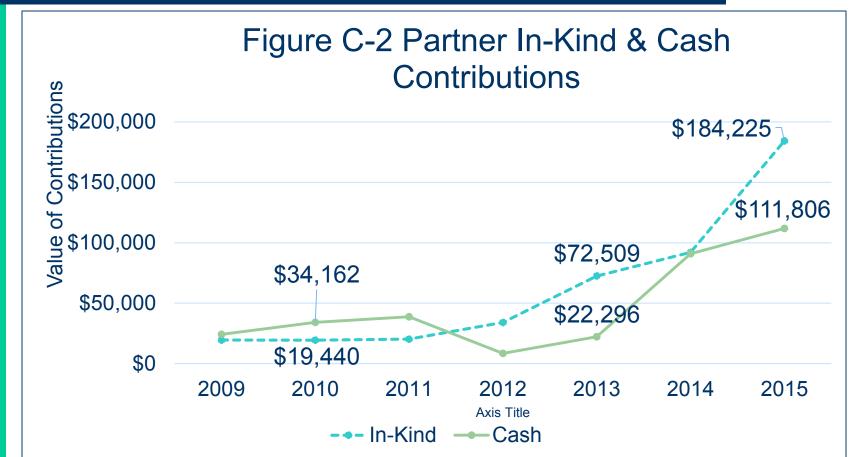
## **Goal 2 Measures: Effectiveness of Curiculum Development Efforts**



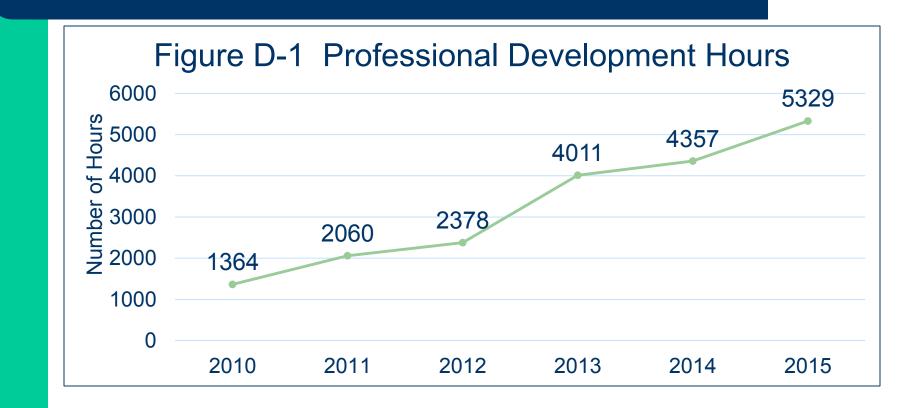
## Goal 3 Measures: Effectiveness of Outreach & Recruitment Efforts

| Table C-1 Key MFG Day Activities Trends |       |               |          |         |          |  |
|---|-------|---------------|----------|---------|----------|--|
|   | #     | #             | #        | #       | #        |  |
|   | Tours | Manufacturers | Teachers | Parents | Students |  |
| 2013                                    | 68    | 72            | 110      | 71      | 2331     |  |
| 2014                                    | 95    | 88            | 174      | 113     | 3150     |  |
| 2015                                    | 159   | 130           | 318      | 318     | 4770     |  |

## **Goal 3 Measures: Effectiveness of Outreach & Recruitment Efforts**



## **Goal 4 Measures: Effectiveness of Professional Development Efforts**



## **Goal 4 Measures: Effectiveness of Professional Development Efforts**

## Average Overall Participant Satisfaction with PD Workshops

2015 12 Events Avg 4.5

Scale: 1 (Poor); 2 (Fair;) 3 (Good) 4 (Very Good); 5 (Excellent)

## Recommendations

POS-IMPACT

- Reinforce current practices; develop new approaches to address/resolve weak recruitment of female students
- Refine approaches to the FLATE sustainability model deployment to eliminate the expected gap in FLATE's mission beyond the life of FLATE

FLATE Updates



## New Business Open Forum Action Items?

Tina Brudniki



FLATE IAC PharmaWorks May 2016

Adjournment



Next Meeting!

# **FUD** hydraulics

803 Tallevast Road Sarasota, FL Thursday Sept 9, 2016

Sun Hydraulics Sarasota, FL

## We hope to see you there!







FLATE IAC PharmaWorks May 2016