

FLATE

Florida's Advanced Technological Education Center of Excellence

Models for Successful Partnerships

Marilyn Barger, Ph.D., P.E., CPT

Executive Director and P.I.

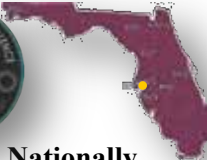
barger@fl-ate.org

www.fl-ate.org

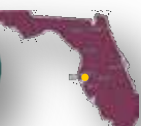
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NSF Advanced Technological Education

ATECENTERS



www.atecenters.org

Partners with Industry for a new American Workforce



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About NSF ATE

**Deliver highly-qualified, industry-endorsed
2-year degree technicians to the advanced
and emerging technology companies**

The Advanced Technological Education (ATE) program endeavors to strengthen the skills of technicians, whose work is vitally important to the nation's prosperity and security. In ATE centers and projects, community colleges have a leadership role and work in partnership with universities, secondary schools, business and industry, and government agencies to design and carry out model workforce development initiatives.

NSF ATE Technologies

Advanced Manufacturing Technologies

Agriculture, Energy & Environmental Technologies

Biotechnology & Chemical Processing

Electronics, Micro & Nanotechnologies

Engineering Technologies

Information, Geospatial & Security

Learning, Evaluation & Research



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NSF ATE Advanced Manufacturing Centers

AMTEC – Louisville, KY

CARCAM - Gadsden, AL

CA²VES – Clemson, SC

FLATE – Tampa, FL

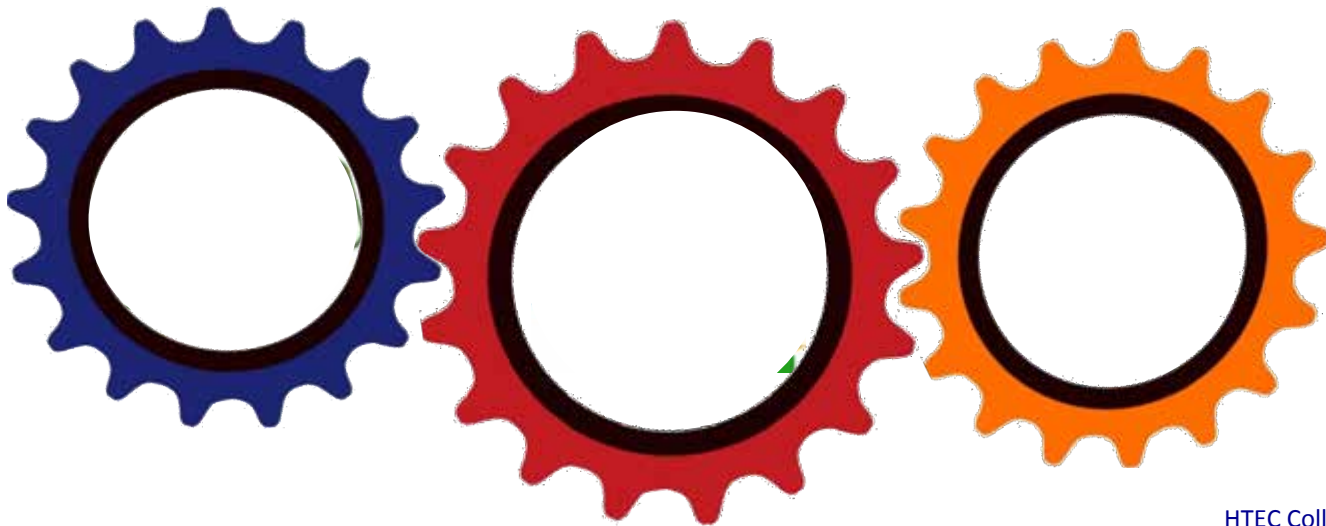
WELD-ED – Elyria, OH

RCNGM – Hartford, CT



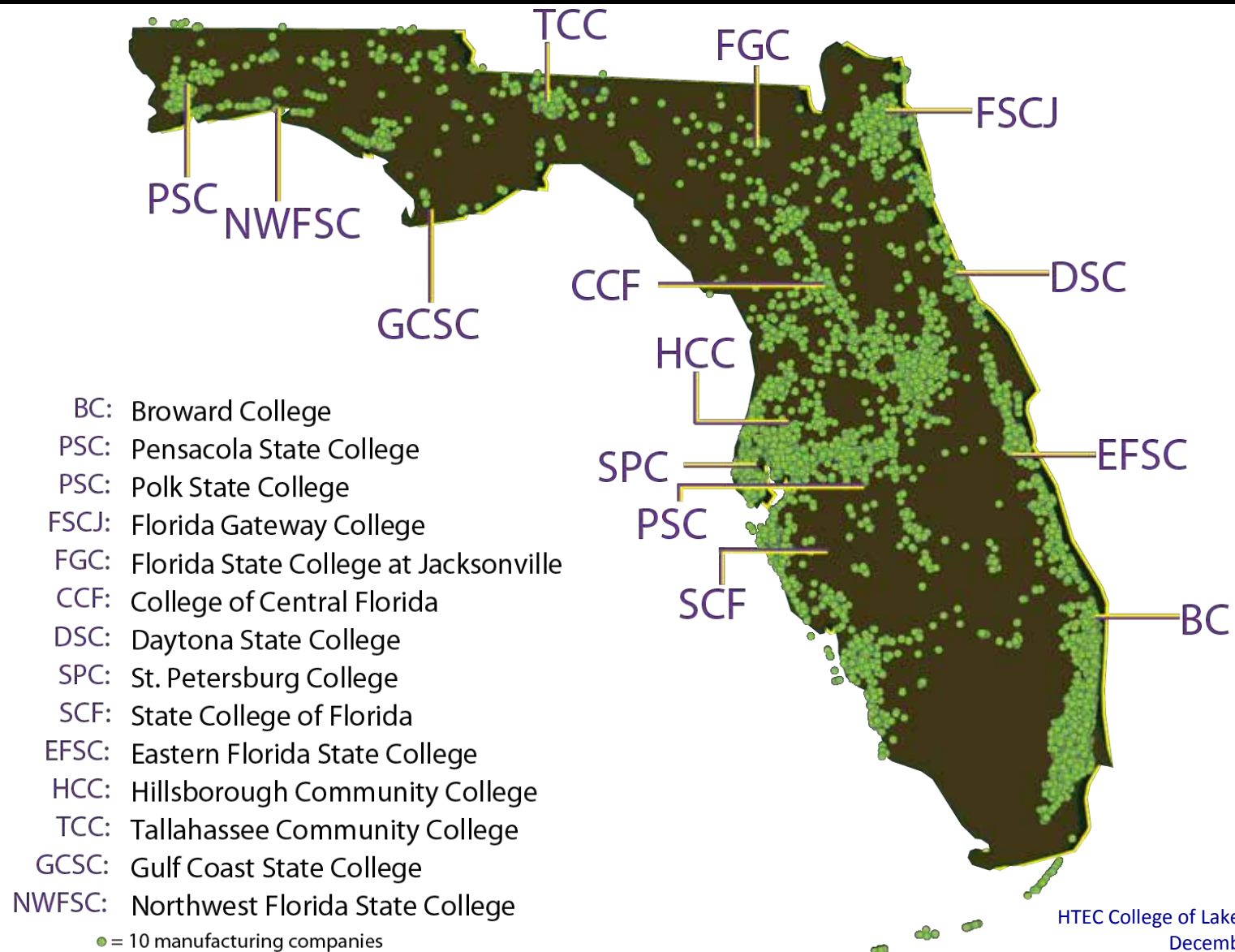
NSF ATE Activities

**Outreach & Recruitment
Curriculum Reform & Development
Professional Development**





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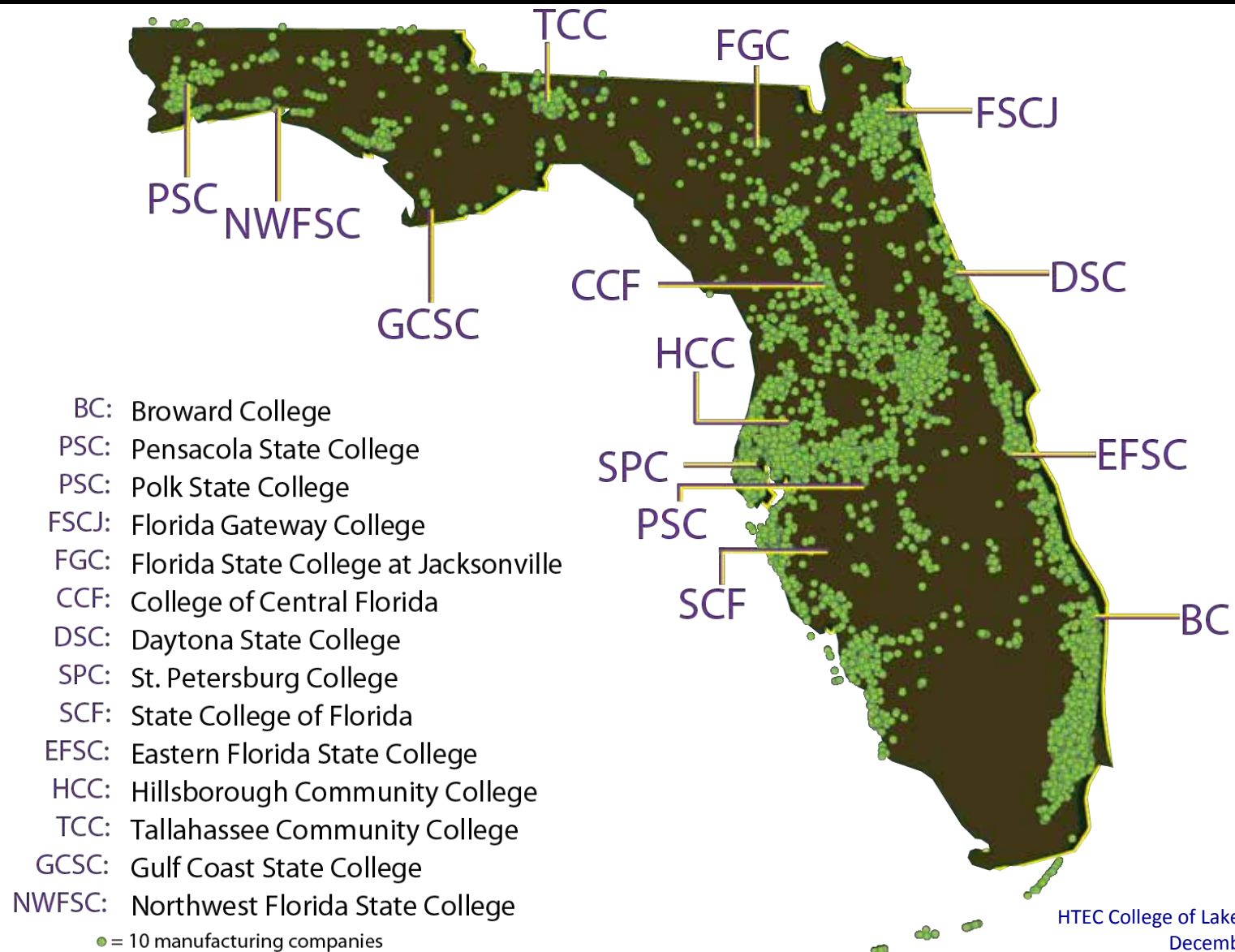
Advanced Manufacturing is a Economic Driver in Florida

- ❖ Florida Manufacturing Establishments: **14,324**
- ❖ Manufacturing Employment: **306,800**
- ❖ **\$36.7 billion** of the total state output
- ❖ Percent of Florida exports: **85%**
- ❖ Manufacturing Average Annual Compensation: **\$62,859** (54.8% higher than other sectors)

Source: U.S. Bureau of Economic Analysis.



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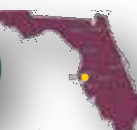
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VISION



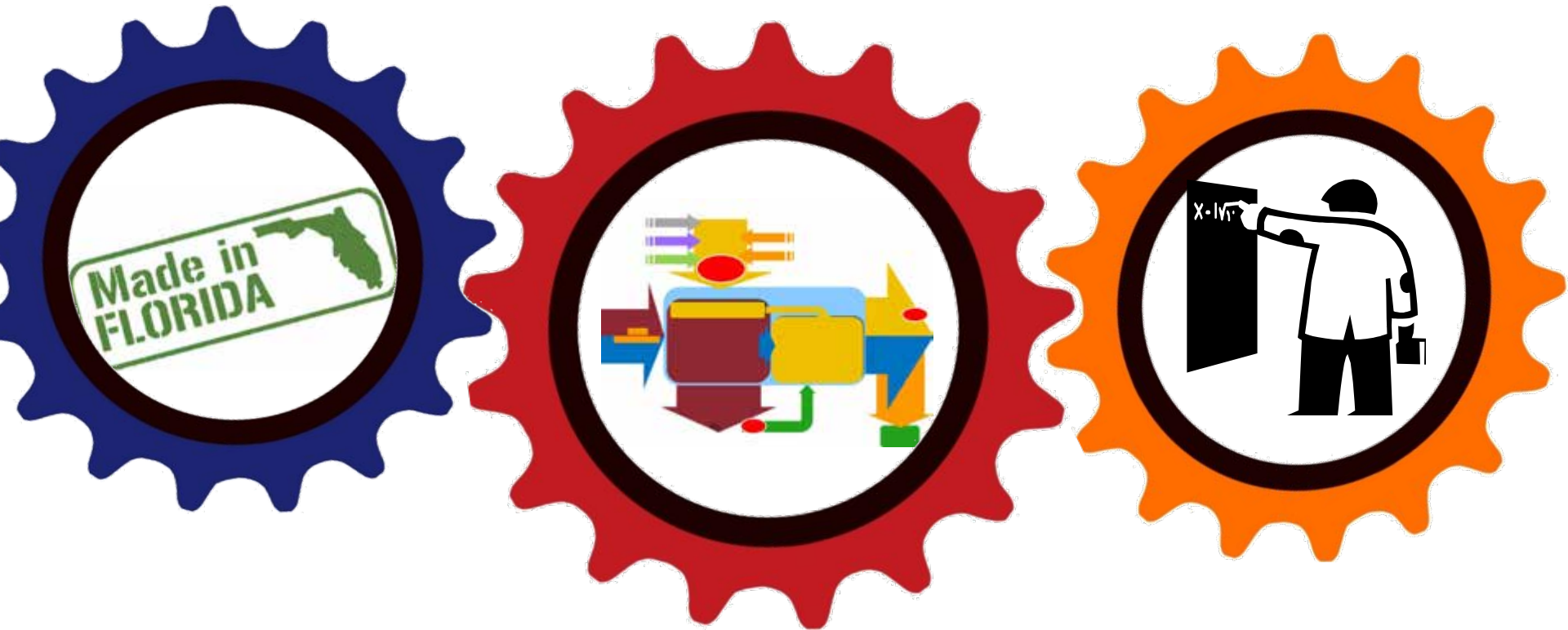
FLATE will be Florida's leading resource for education and training expertise, leadership, projects, and services to promote and support the workforce in the high performance production and manufacturing community.

Impact locally. Lead nationally.



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Outreach ♦ Curriculum Reform ♦ Professional Development



Tell

Teach

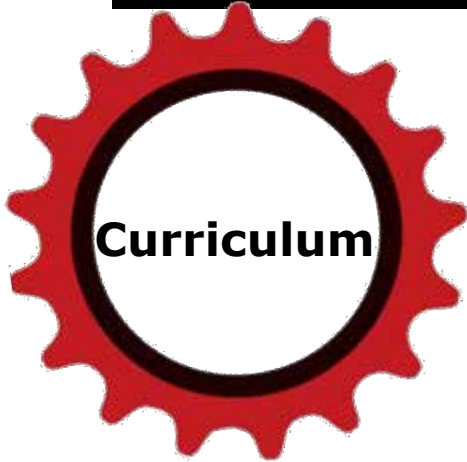
Train

Advancing Excellence in Engineering Technologies



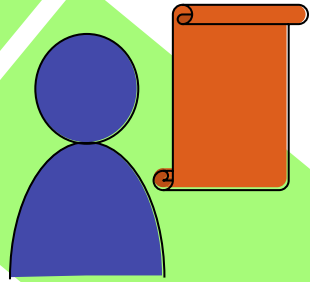
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Curriculum Reform & Development



**Develop & support 2-year
programs that prepared the
manufacturing technician
workforce needed by industry**

COLLABORATIVE PARTNERS



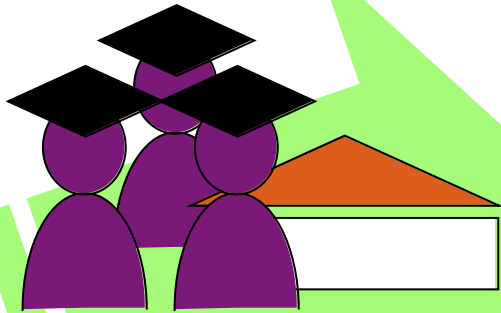
State DOE



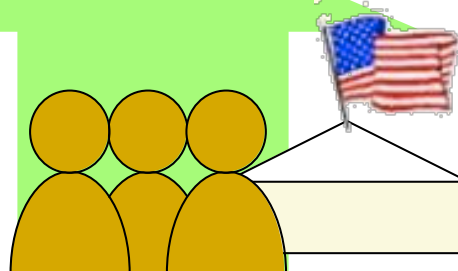
Workforce Agencies



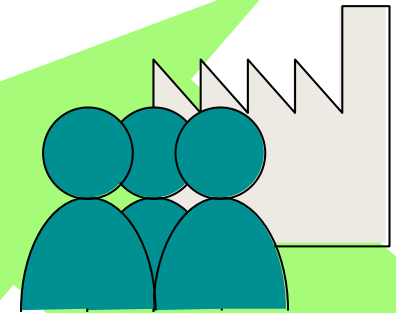
**External
Benchmarks**



**State Colleges Academic
& Workforce Programs**



School Districts



Manufacturers

Florida's A.S. Engineering Technology Degree

60 semester hours

I. General Education – 15 - 18 credit hours

II. ET Core - 18 credit hours

III.8 Specialization Tracts – 24 to 27 credit hours



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Florida's A.S. Engineering Technology Degree

60 semester hours

I. General Education – 15 – 18 credit hours

English

Science

Math

Social Science

Humanities

II. ET Core - 18 credit hours

Computer Aided Design

Manufacturing Processes & Materials

Mechanics & Instrumentation

Electronics

Quality

Safety



III. 10 Specialization Tracts – 24 to 27 credit hours

Advanced Manufacturing

Biomedical Systems

Electronics

Quality

Digital Manufacturing

Advanced Technology

Digital Design & Modeling

Mechanical Design & Fabrication

Alternative Energy Systems

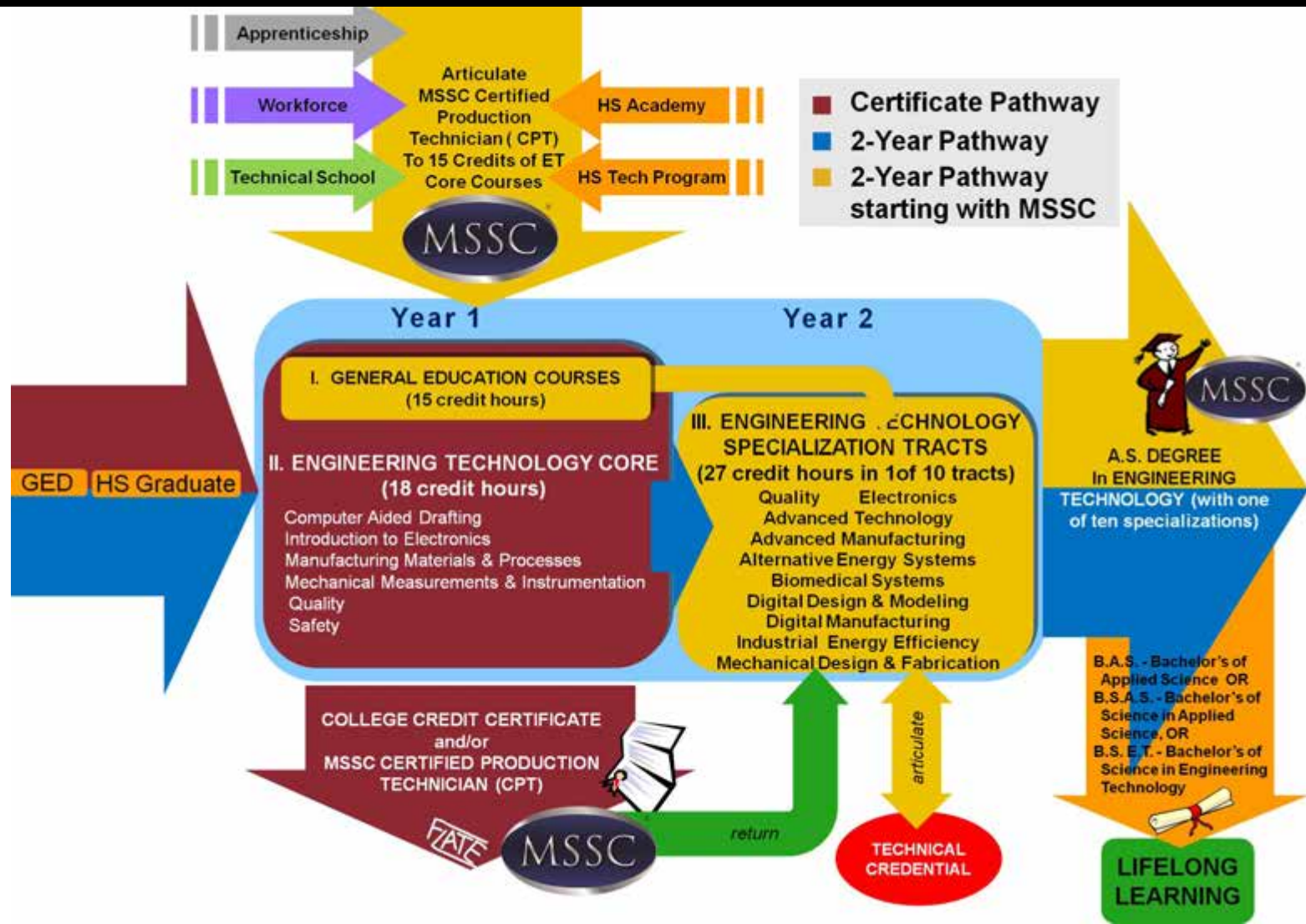
Industrial Energy Efficiency



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A.S. Engineering Technology Pathways

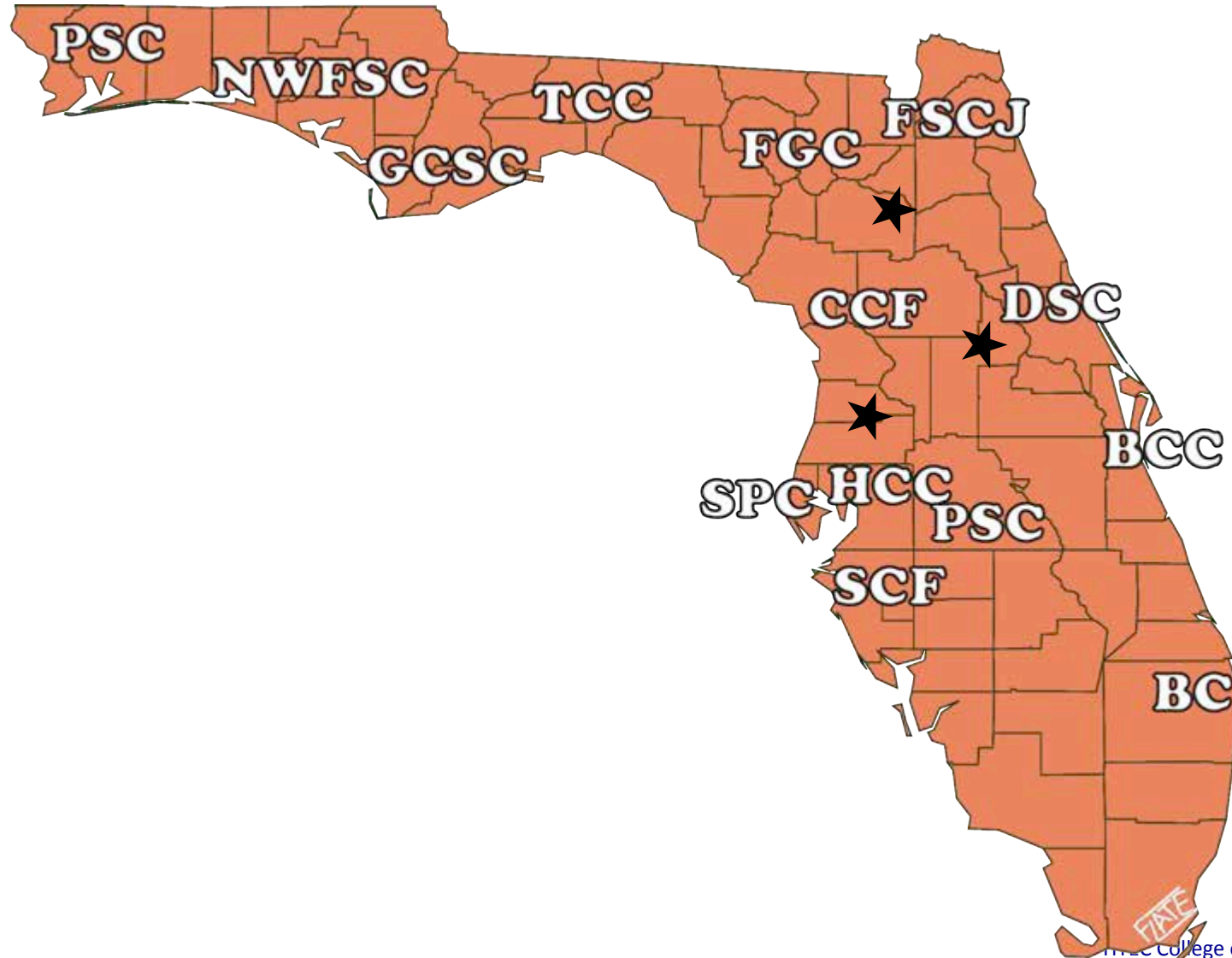
Supporting Florida Industries with Validated Stackable Credentials





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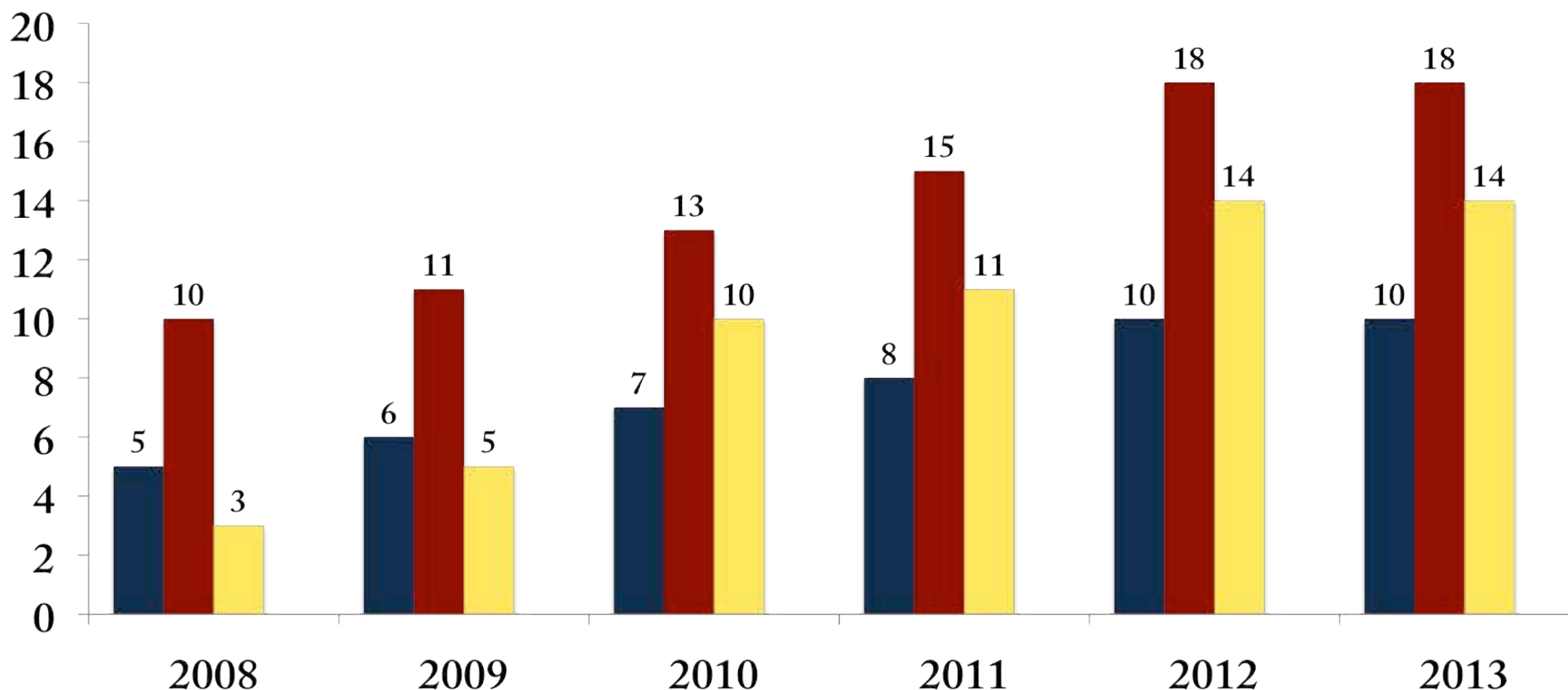
FLATE's Engineering Technology Network





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Key Milestones: ET Degree



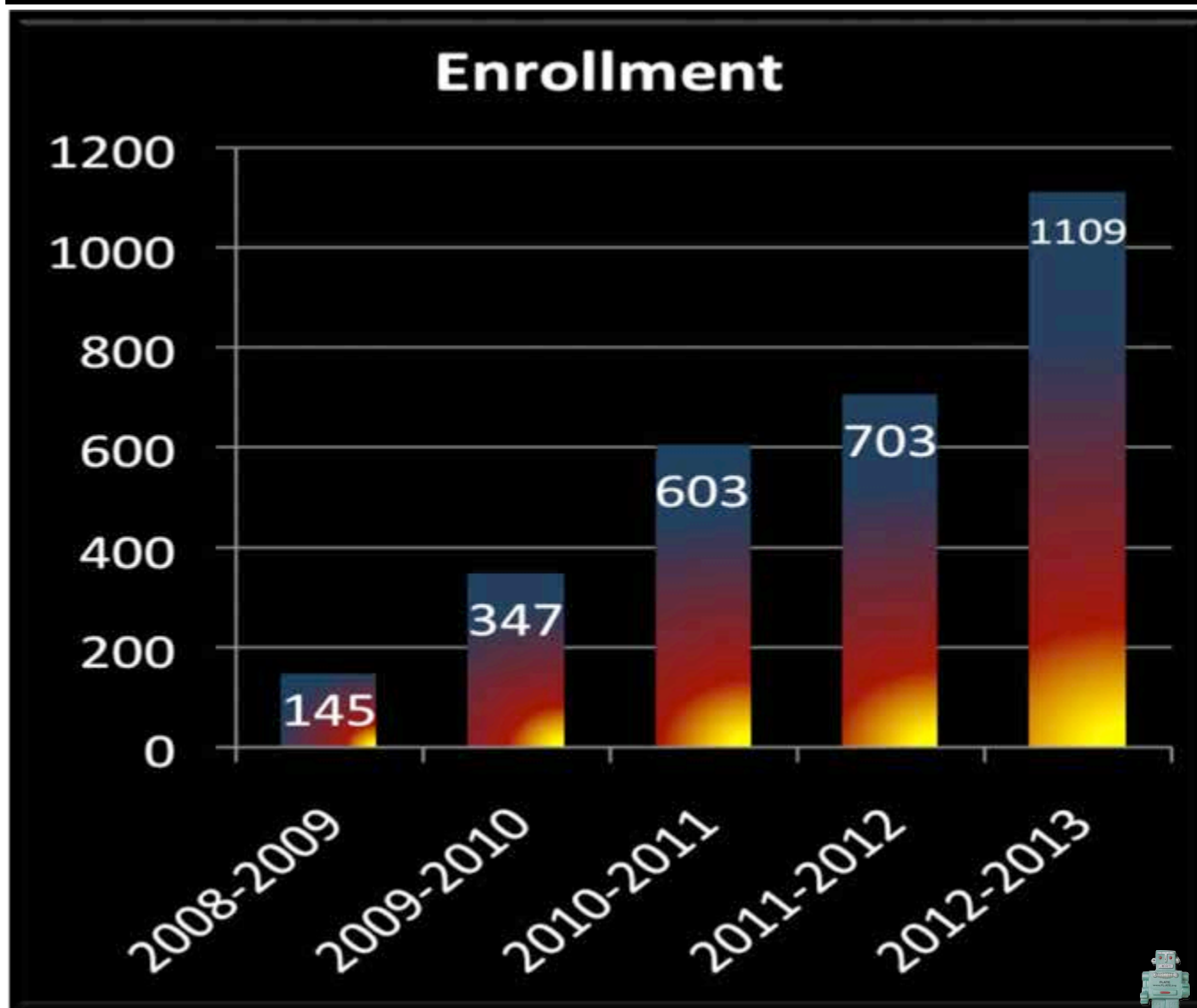
- ET Degree specializations
- ET Degree college credit certificates
- ET Degree Colleges





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Key Milestones: ET Degree



- Building the required support infrastructure behind the Florida Plan
- Requires “Communities of Practices”

High Schools, Post Secondary and A.S. degree programs

Manufacturers

FL Depart of Education

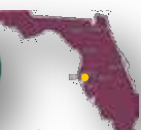
Manufacturer Assoc

Workforce Florida



Innovations

*Trained employees contribute to **educated** production employees create productivity*

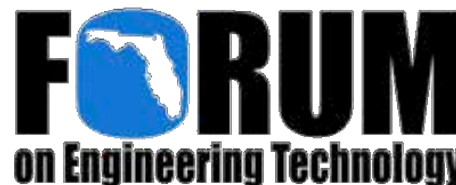


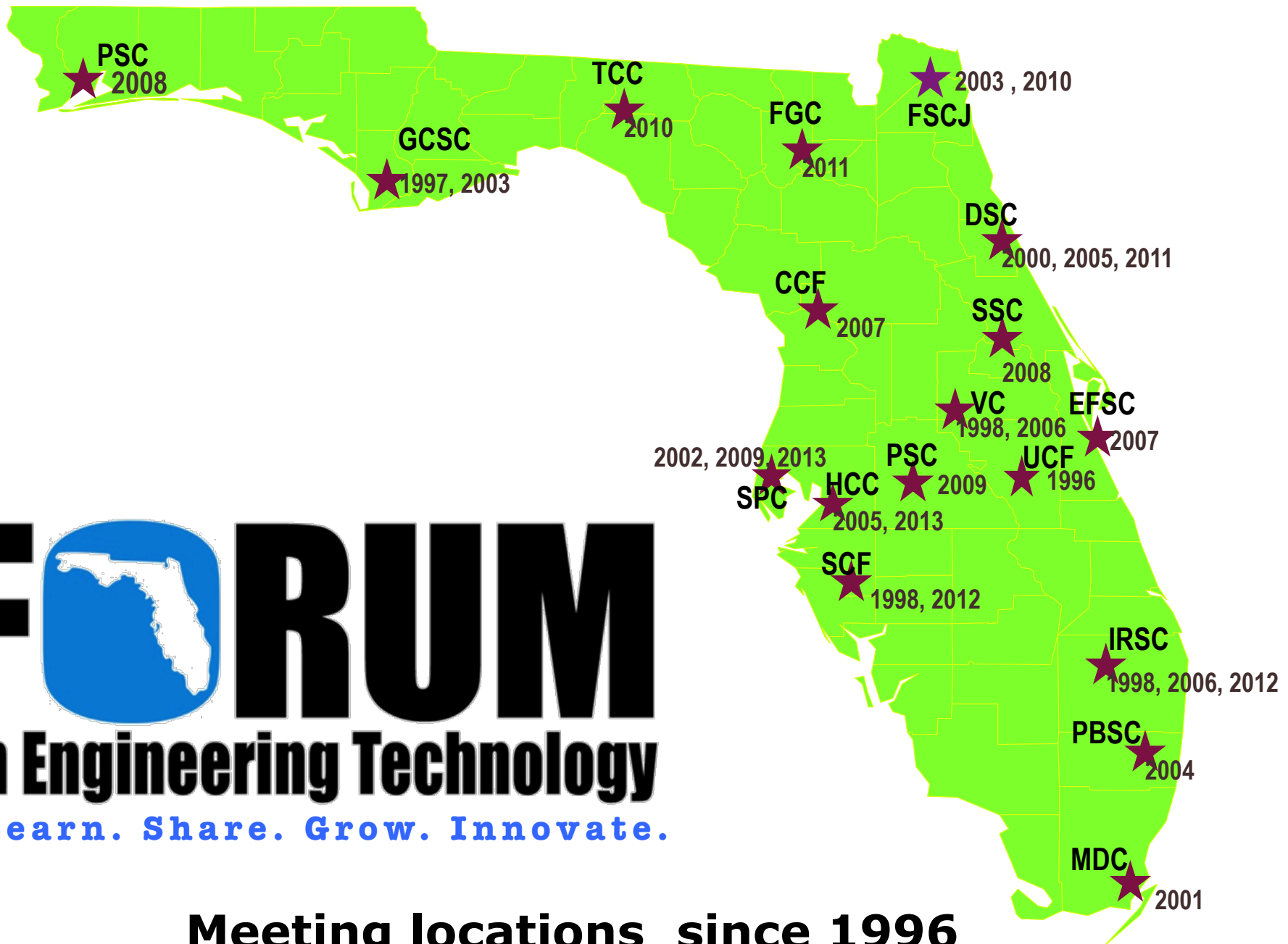
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FORUM Organization

The Florida Engineering Technology Forum (ET Forum) is an important vehicle that brings together the diverse and geographically dispersed colleges to address challenges and tackle common issues.

- ❖ Free to all participants (generally 25-40)
- ❖ Hosted by various colleges
- ❖ 2-days; twice / year
- ❖ 1 permanent chair + 1 local host
- ❖ No budget, no officers, no by-laws
- ❖ Open agenda & lots of dialogue
- ❖ Attended by educators, industry, workforce, etc





FORUM
on Engineering Technology
Learn. Share. Grow. Innovate.

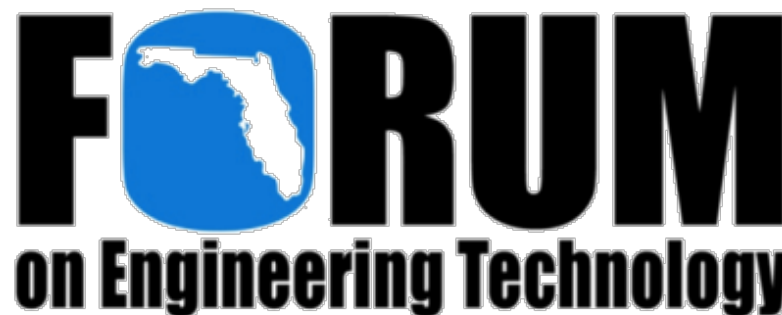
Meeting locations since 1996



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ET FORUM Participants

- ❖ College **faculty** & program managers
- ❖ **FL DOE** supervisors
- ❖ Local and regional **industry** reps
- ❖ **University** partners
- ❖ **State agency** professionals
- ❖ Local **K12** CTE administrators
- ❖ Local and regional **equipment vendors**





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FLATE's Engineering Technology Network



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[Industry](#)
[Careers](#)
[Students](#)

[Why Manufacturing](#)
[E.T. Degree](#)
[Student Profiles](#)
[Salary Information](#)
[Company Profiles](#)
[News & Events](#)

Engineering Technology Education

At a Community College near you!

Good jobs, great pay, bright future



The Engineering Technology (ET) degree program was developed by the Advanced Technology Education (FLATE) with Community Colleges and Industries across the state and in close partnership with the Department of Education Division of Adult and Education to address the growing need to supply manufacturers and high technology industries with qualified, highly skilled workers in the foreseeable future.

The new ET degree program is a cohesive, comprehensive degree program that focuses on a set of core classes that cover introduction to drafting, electronics, instrumentation and testing, processes and quality and safety. These core skills align with the national Manufacturing Skill Standards Council (MSSC) Portable Production Technician Certification. The ET Core coupled with a second year degree specialization prepares students for many jobs in manufacturing and many other high-technology industries.

A valid MSSC CPT credential articulates to 15 credit hours of the ET Technical Core in any of colleges offering the degree in the state. The MSSC CPT is also one component of the National Association of Manufacturers (NAM) endorsed Stackable Certification System (SCS). This SCS system aligns industry validated credentials with academic programs and occupations supporting all manufacturing sectors.

[View school location map](#)

Community colleges currently offering the ET degree include:

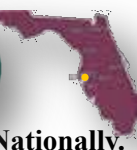
Click on the logos below to view program information







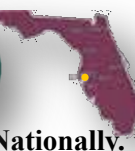




Outreach & Recruitment



FLATE's *Made in Florida* program provides Florida with a one-stop-shop for manufacturing outreach & career information



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"MIF" outreach

FLATE
ROBOT
HIGH SCHOOL
CAMP



MFG DAY
10.04.13 in
FLORIDA!



FLATE's wiki
...full of great FREE RESOURCES for you!





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Do what you in a manufacturing career

**Aviation
& Aerospace**



**Beverage, Food &
Pharmaceuticals**



**Medical Devices &
Equipment**



**Machining &
Product Fabrication**



**Transportation
& Logistics**



**Leisure &
Entertainment**

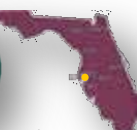


**Electronics, Electrical
& computers**



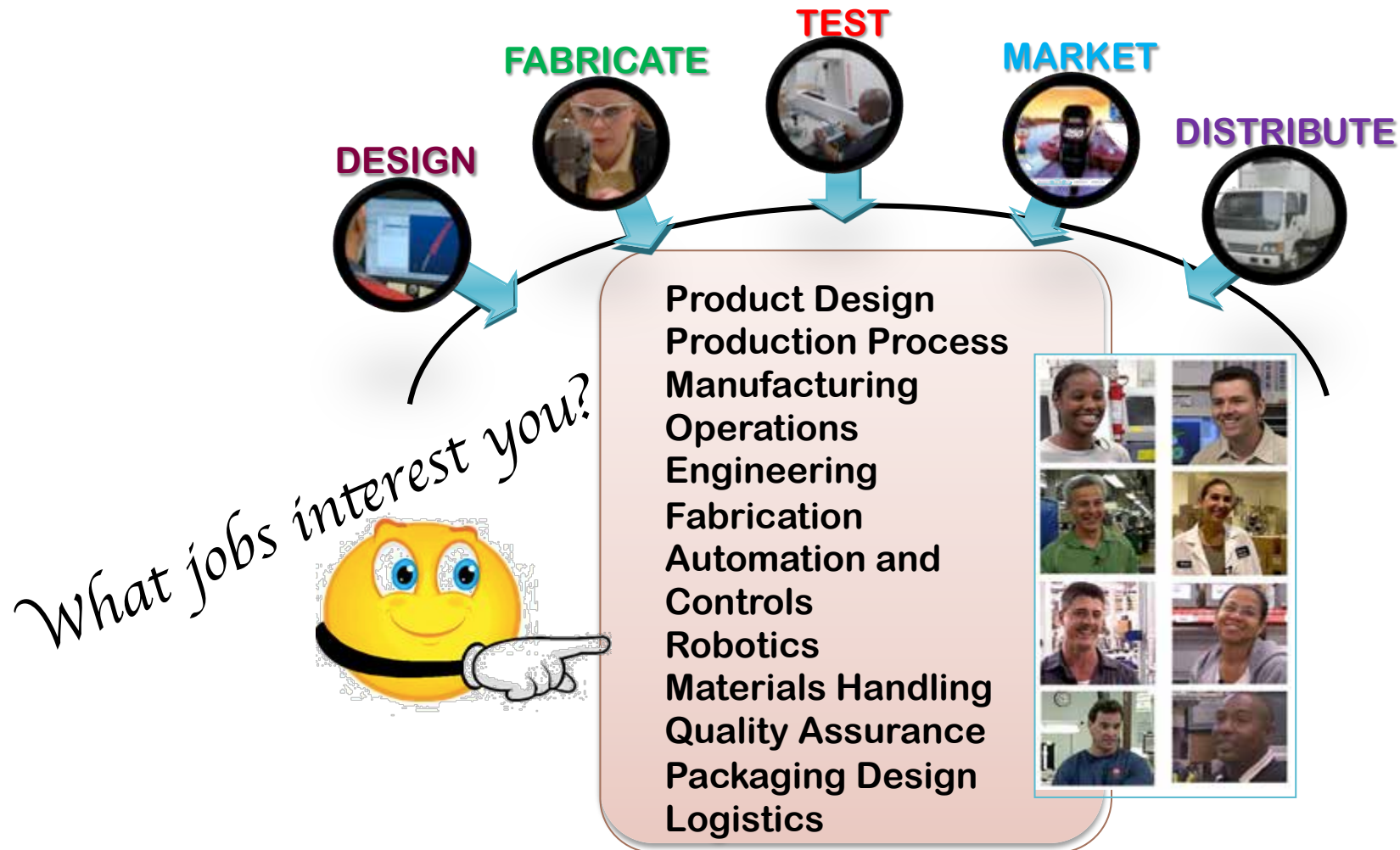
**Product Design &
System Integration**





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What is manufacturing?



Engineering Tech @ St. Petersburg College (60 credits)

The Engineering Technology Associate in Science degree is a 60 credit hour program. The degree program consists of general education (18cr), ET core (18cr) and specialized technology (24cr) courses. This degree program consists of four specializations: Digital Design and Modeling, Biomedical Systems, Electronics and Quality.

After completing the ET Core Courses, students will be prepared to take the Manufacturing Skills Standards Council (MSSC) assessments for the Certified Production Technician (CPT).

ENGINEERING TECHNOLOGY Core Courses

CAD	Electronics
Measurement & Instrumentation	Quality
Manufacturing Processes	Safety

SPECIALIZATIONS Available

DIGITAL DESIGN AND MODELING
BIOMEDICAL SYSTEMS
ELECTRONICS
QUALITY



PROGRAM DESCRIPTION:
This program prepares students for an entry-level position in a wide range of manufacturing organizations. Students learn the fundamentals appropriate for all types of manufacturing. This program also provides supplemental training for individuals previously or currently employed in the manufacturing industry. After completing the first year, students can take the Manufacturing Skills Standards Council (MSSC) test. The two options available in this degree allow the student to seek employment in several different positions in the high-growth manufacturing industry.

All A.S. degree - seeking students must satisfy entry-level assessment requirements and complete all required college preparatory courses in reading, writing, and mathematics with a grade of "C" or better.

ASSOCIATE IN APPLIED SCIENCE DEGREE			
GENERAL EDUCATION AND ENGINEERING TECHNOLOGY CORE COURSES			
GENERAL EDUCATION (18 credits)	Cr.	ENGINEERING TECHNOLOGY CORE (18 credits)	Cr.
Written Communication Requirement	3	ETEC 1100 AutoCAD Fundamentals	4
Oral Communication Requirement	3	ETEC 1009 Introduction to Electronics	3
Humanities Requirement	3	ETEC 1030 Materials and Processes	3
MAT 1003 Intermediate Algebra I/II	3	ETEC 1001 Applied Mechanics	4
SCN 1103 Technical Math	3	ETEC 1110 Introduction to Quality Assurance	3
Social/Behavioral Science Requirement	3	ETEC 1101 Industrial Safety	3
COB 1100 Computer Applications	3		
SPECIALIZED TRACK COURSES			
ELECTRONICS TECHNOLOGY (12 credits)	Cr.	ADVANCED TECHNOLOGY (12 credits)	Cr.
ETEC 1005 Circuit Fundamentals I	4	AFAC 1000 Introduction to the Workplace (21st century skills)	4
ETEC 1006 Circuit Fundamentals II	4	ETEC 1010 Advanced Surface Mount Soldering Tech	3
ETEC 1007 Analog Devices	4	ETEC 1011 Automation Fundamentals	3
ETEC 1008 Digital Fundamentals	4	ETEC 1012 High Speed Technology	3
ETEC 1009 Introduction to Electronics	3	ETEC 1013 Non-Destructive and Destructive Testing	3
ETEC 1010 Advanced Surface Mount Soldering Tech	3	ETEC 1014 Composite Fundamentals	3
ETEC 1011 Automation Fundamentals	3		
ETEC 1012 High Speed Technology	3		
ETEC 1013 Non-Destructive and Destructive Testing	3		
ETEC 1014 Composite Fundamentals	3		
TECHNICAL ELECTIVE COURSES			
ETEC 1015 Microprocessor Fundamentals	4	ETEC 1016 Other Glass Technology	3
ETEC 1016 Other Glass Technology	3	ETEC 1017 Special Topics	3-4
ETEC 1017 Special Topics	3-4	ETEC 1018 Internship	3
ETEC 1018 Internship	3	ETEC 1019 Composites Fundamentals	3
ETEC 1019 Composites Fundamentals	3	ETEC 1020 Advanced Composites	3
ETEC 1020 Advanced Composites	3	ETEC 1021 Engineering Project Management	3

High-Wage High-Skill Careers MADE IN FLORIDA



ENGINEERING TECHNOLOGY EDUCATION Certificates and Degrees Supporting Florida's High Tech Industry Sectors

- Aerospace
- Advanced Manufacturing
- Advanced Materials
- Energy & Systems Integration
- Food, Beverage & Pharmaceuticals
- Insurance & Entertainment Systems
- Medical Devices & Equipment
- Metal Machining & Fabrication
- Pipe & Process Design
- Transportation & Logistic Products



IN PARTNERSHIP WITH FLATE
FLORIDA ADVANCED TECHNOLOGICAL EDUCATION CENTER

www.madeinflorida.org www.fl-ate.org



This material is shared with you by the Florida State Board of Technical Education on the dates 08/27/10 and 08/28/10.

EXPLORE CAREERS IN MANUFACTURING



ENGINEERING TECHNOLOGY EDUCATION

Insert name of college here; include branch campus, if any

Manufacturing is a vibrant and exciting career option for students who are innovative, enjoy using their creativity, get excited about using new technology, and are interested in learning how things work.

Want to introduce your students to the world of engineering technology?
FLATE (Florida Center for Manufacturing Education) and its local academic partners offer a variety of options to introduce students to the world of high-tech manufacturing, including:

• **Student Industry Tours** - Over 1,600 students and 150 teachers have participated in the Made in Florida Tours of manufacturing facilities. Contact David Gels, Outreach Manager at 813-219-4781 or gelsd@fl-ate.org, to schedule a tour for your students.

• **Classroom Speakers** - Don't have the time or resources to send a visit? Contact David Gels, Outreach Manager at 813-219-4781 or gelsd@fl-ate.org, to schedule a visit to your classroom by a manufacturing expert.

• **Made in Florida Learning Challenges** - Middle and High School classroom learning activities based on Florida Manufacturing. Visit www.madeinflorida.org/education.html

On the Web

• **Made in Florida Virtual Tour** - Visit www.madeinflorida.org/virtual_tour.html

• **Made in Florida Video on Florida Manufacturing** - Visit www.madeinflorida.org/video.html

• **The National Association of Manufacturers, Dream It - Do It Campaign** - View videos are posted every Saturday. Visit www.dreamit-dot-com, go to the Career tab and click on Cool Videos of Stuff Being Made.

• **Manufacturing is Cool** - This web site is interactive and includes several more and other tools to inspire young minds. Visit www.manufacturingiscool.com



www.madeinflorida.org
www.myspace.com/floridafuture



skills can
satisfying
evolving

TECHNOLOGY JOBS IN FLORIDA



ENGINEERING TECHNOLOGY EDUCATION

Insert name of college here; include branch campus, if any

MANUFACTURING IS BIG BUSINESS, and it's getting bigger. Florida's manufacturing industry employs about 400,000 workers and accounts for more than \$52 billion of its gross state product.

Florida manufacturers are looking for highly-skilled, technically educated people and the new Engineering Technology degree program promises to keep Florida's manufacturers supplied with highly skilled workers, while providing its graduates with rewarding, high-wage jobs.

The Bureau of Labor Statistics predicts that each year through 2012 employers will be seeking:

- 17,000 industrial and manufacturing engineers
- 14,000 mechanical engineers
- 14,000 engineering technicians
- 273,000 metal and plastic production workers

Average hourly wage with a two-year degree:

- Electrical and Electronic Engineering Technicians \$20.51
- Industrial Engineering Technicians \$15.65
- Mechanical Engineering Technicians \$15.52
- Electrical and Electronic Drafters \$16.96
- Electronic, Computer and Product Service Rep \$15.19

Average hourly wage with a four-year degree:

- Manufacturing Engineer \$36.27
- Systems Designer \$15.39
- Electronic Engineer \$15.21
- Industrial Engineer \$15.81

* 2 year A.S. degree are a stepping stone to a 4 year Bachelor of Applied Science degree in the State of Florida and equivalent to BS/ET degree in CIP





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Reflections

do the "hard"
stuff

seize
opportunities

share the "win"

define a neutral
working space

accept
compromise

listen actively

recognize others

"work with what
you've got"

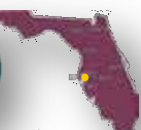
nurture
relationships

build a team

laugh together

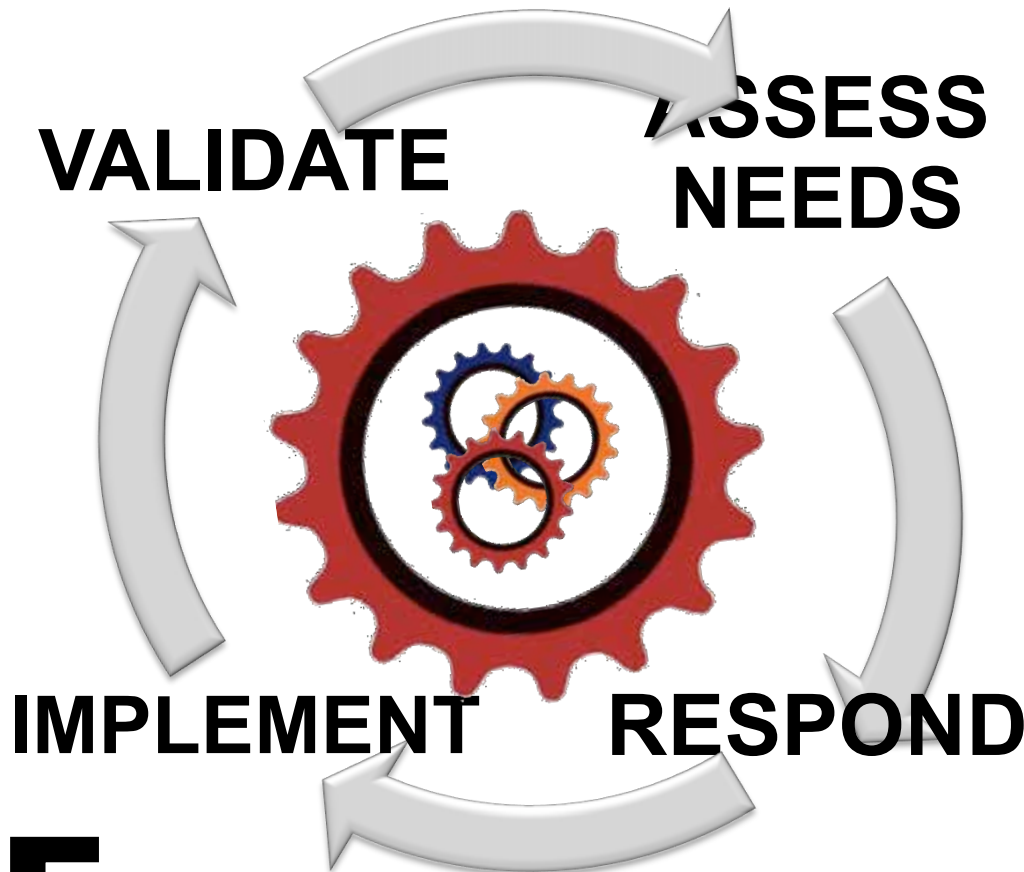
build consensus

engender trust



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Peer to Peer Leadership



FLATE

Florida's Advanced Technological Education Center of Excellence
supporting Florida's manufacturing workforce needs

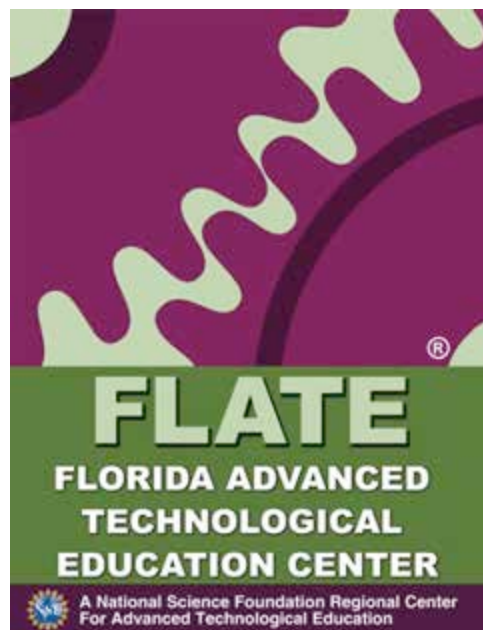




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Thank you!

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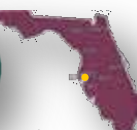
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<http://flate.pbworks.com/>*

FLATE's wiki
...full of great FREE RESOURCES for you!



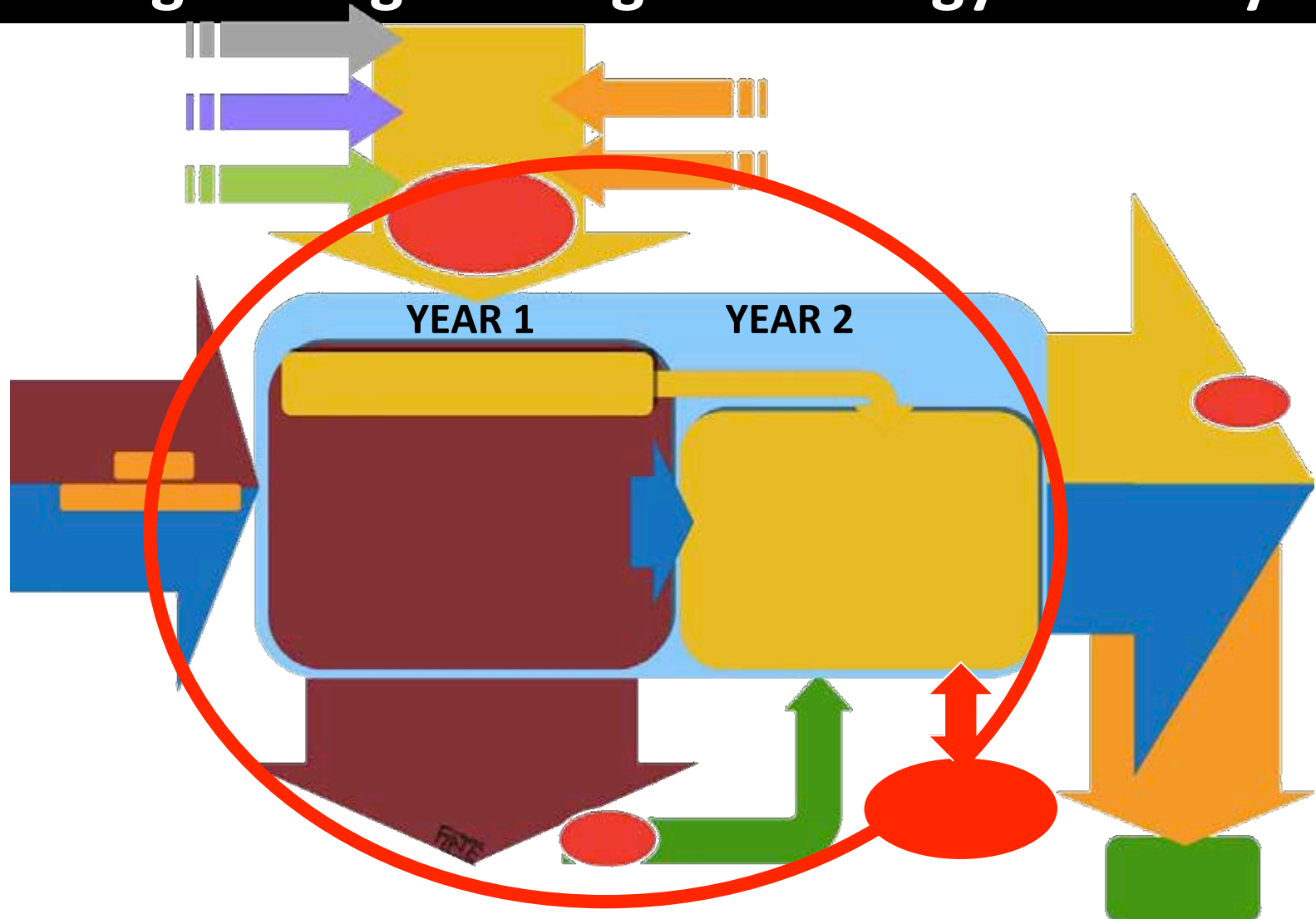
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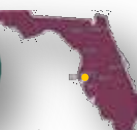




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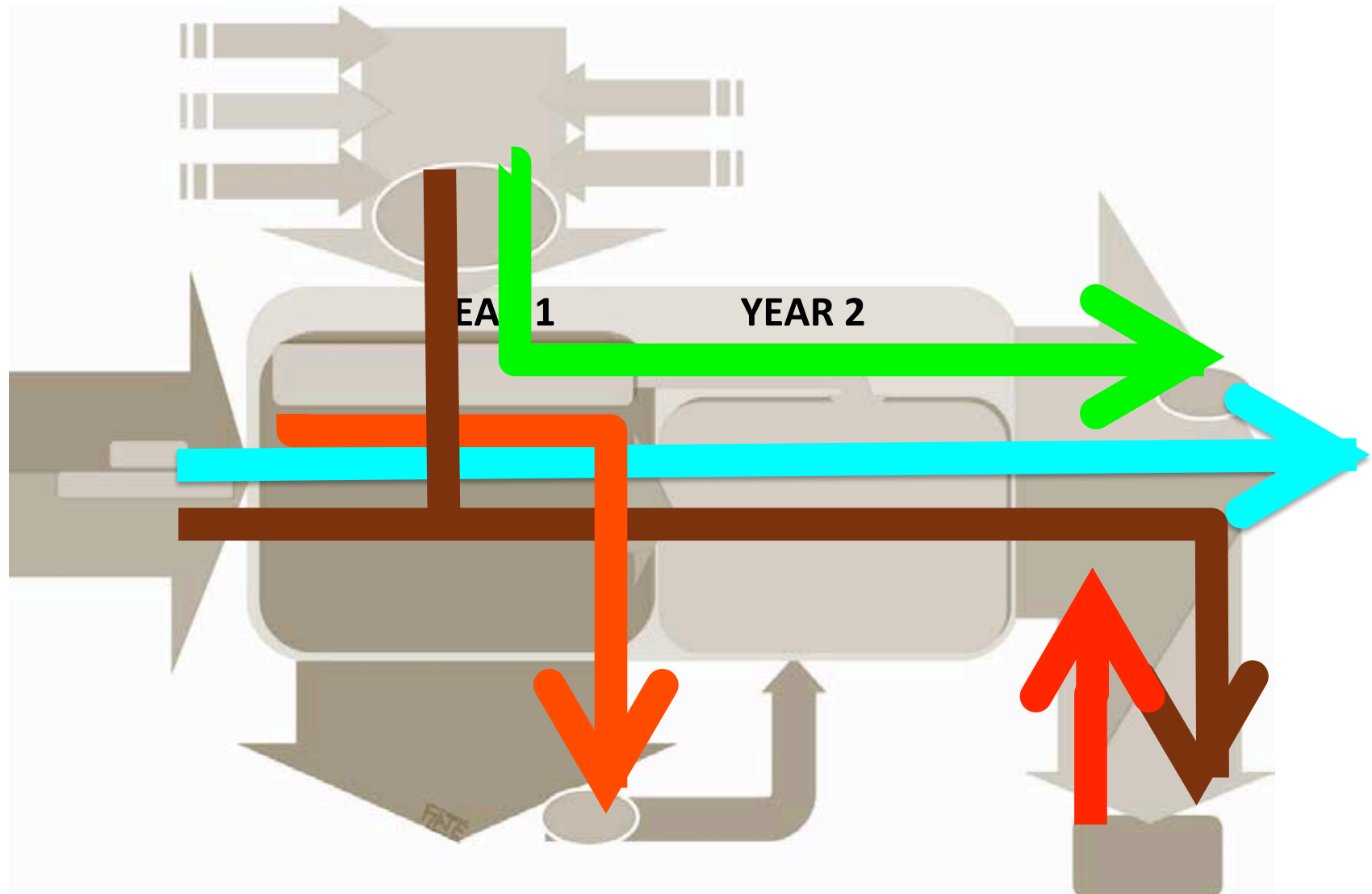
A.S. Degree Engineering Technology Pathways





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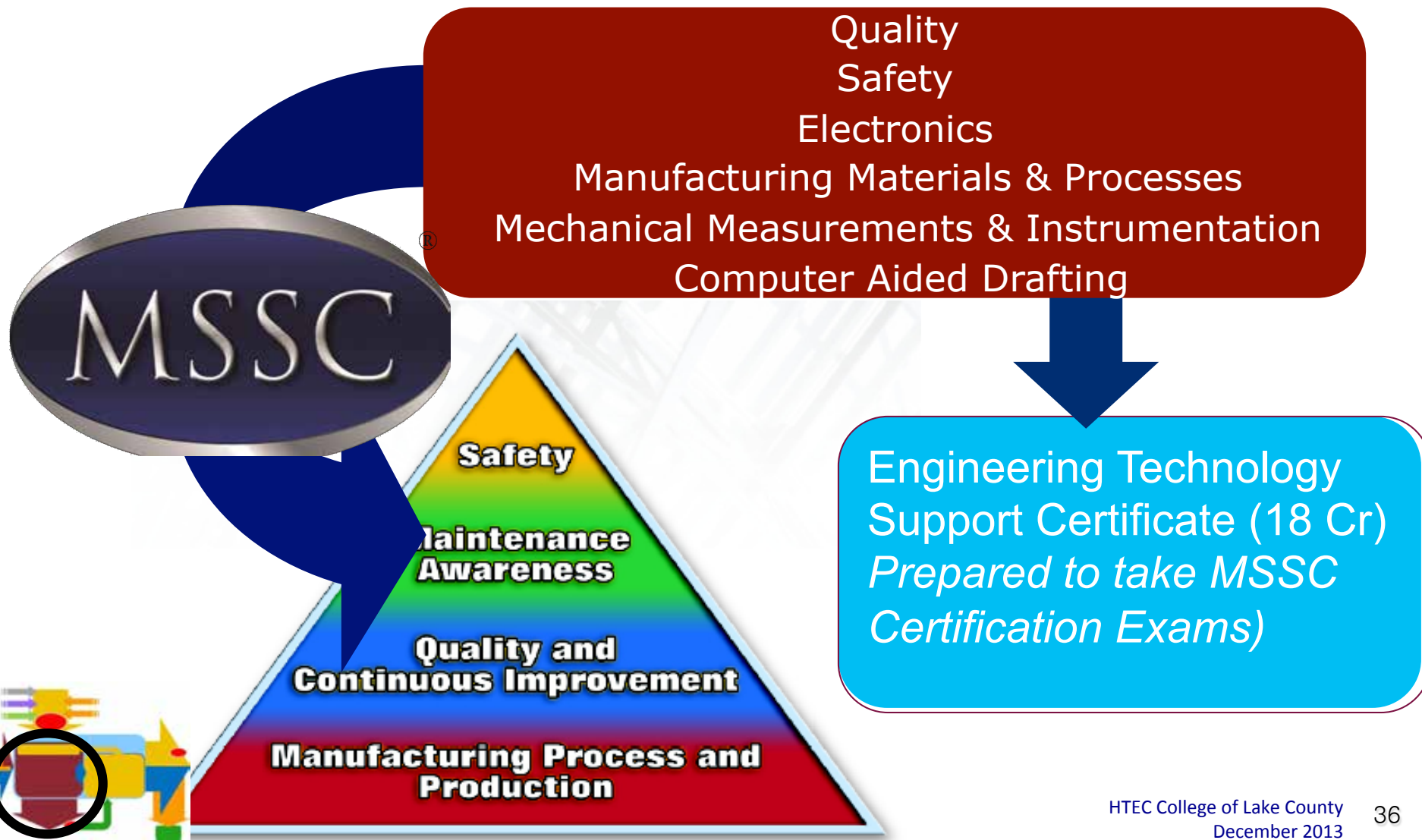
A.S. Engineering Technology Pathways

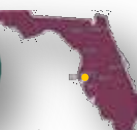




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ET Degree Technical Core

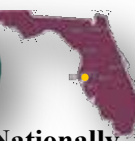




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ET Degree Technical Core





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FLATE's Engineering Technology Network

SPECIALIZATION	COLLEGES & LOCATIONS
Quality	College of Central Florida (CF) - Ocala Florida Gateway College (FGC) - Lake City St. Petersburg College (SPC) - Clearwater Tallahassee CC (TCC) - Tallahassee
Electronics	Eastern Florida SC (EFSC) - Cocoa, Palm Bay Broward College (BC) - Coconut Creek State College of Florida (SCF) - Venice St. Petersburg College (SPC) - St. Pete
Advanced Manufacturing	Florida Gateway College (FGC) - Lake City Florida State College (FSCJ) - Jacksonville Gulf Coast SC (GCSC) - Panama City Hillsborough CC (HCC) - Tampa Polk State College (PSC) - Lakeland Tallahassee CC (TCC) - Tallahassee
Mechanical Fabrication & Design	Gulf Coast SC (GCSC) - Panama City Florida State College (FSCJ) - Jacksonville Northwest Florida SC (NWFSC) - Niceville Tallahassee CC (TCC) - Tallahassee

SPECIALIZATION	COLLEGES & LOCATIONS
Advanced Technology	Eastern Florida SC (EFSC) - Cocoa, Palm Bay Tallahassee CC (TCC) - Tallahassee
Biomedical Systems	Broward College (BC) - Coconut Creek St. Petersburg College (SPC) - Clearwater
Digital Design & Modeling	College of Central Florida (CF) - Ocala Gulf Coast SC (GCSC) - Panama City Northwest Florida SC (NWFSC) - Niceville State College of Florida (SCF) - Venice St. Petersburg College (SPC) - St. Pete Tallahassee CC (TCC) - Tallahassee
Alternative Energy Systems	Eastern Florida SC (EFSC) - Cocoa, Palm Bay Broward College (BC) - Coconut Creek Gulf Coast SC (GCSC) - Panama City Tallahassee CC (TCC) - Tallahassee
Industrial Energy Efficiency	Florida State College (FSCJ) - Jacksonville
Digital Manufacturing	Gulf Coast SC (GCSC) - Panama City