



# Adding in ... sustainability curriculum

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# NSF Advanced Technological Education



*Partners with Industry for a new American Workforce*



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# FLATE's VISION

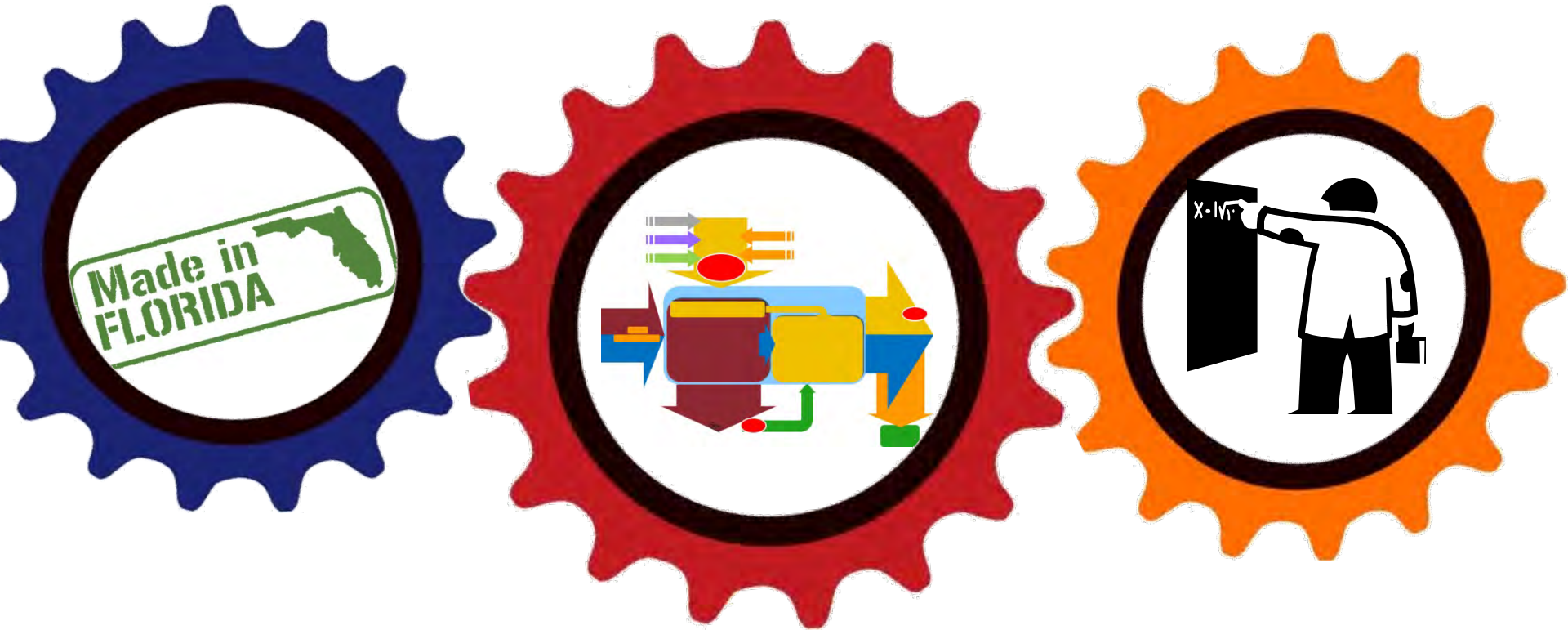
FLATE will be Florida's leading resource for education and training expertise, leadership, projects, and services to promote and support the workforce in the high performance production and manufacturing community.



**Impact locally. Lead nationally.**

# FLATE's Goals

Advancing Excellence in Engineering Technologies



**Tell**

**Teach**

**Train**



In 2008, Florida's legislature directed, via the Florida Energy Systems Consortium (FESC), the State's University and College system to develop applied research and specific technical education pathways to allow Florida to meet its 2020 energy generation and demand criteria.

In that same legislative action, FLATE, the National Science Foundation Advanced Technological Education Center of Excellence for Florida, was commissioned to partner with FESC to prepare and execute a technician workforce plan that will put that energy workforce into place on time.



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# EST<sup>2</sup> Project Team

The National Science Foundation-funded Energy Systems Technology Technicians (EST<sup>2</sup>) project team comprises individuals from Eastern Florida State College (formerly Brevard Community College), Florida State College at Jacksonville, Tallahassee Community College and Hillsborough Community College.



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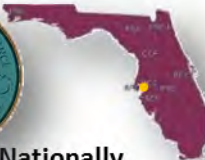
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# Workforce Education in the Florida State College System

*Guiding principles* for developing of any technical curriculum framework

- **industry review and validated technical skills**
- **targeted Florida occupations list**
- **U.S. Department of Labor occupation codes**
- **regional workforce needs projections**
- **workplace and employability skills**
- **general education component.**

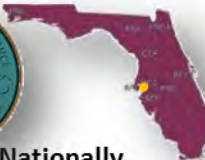
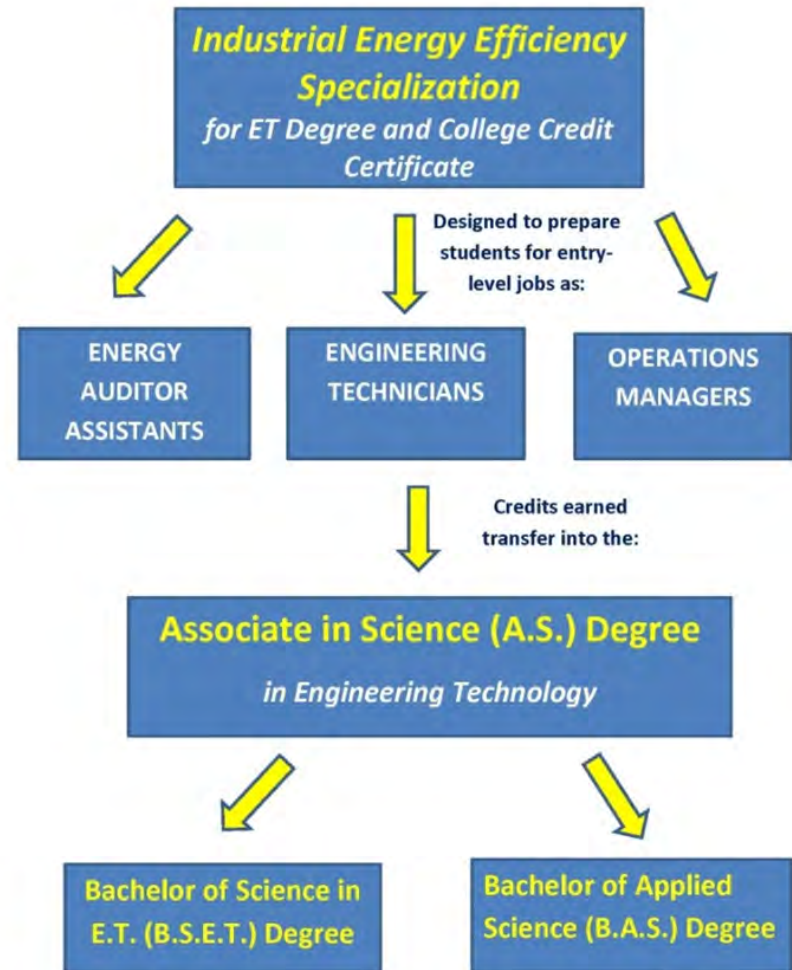


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- Green job sectors are flourishing
- Interest in reducing operating costs by maximizing energy efficiency is attracting students at all education levels.
- Florida has 2 important seamless pathways to 4- year degrees for the A.S. Engineering Technology degree graduates.



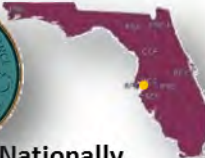
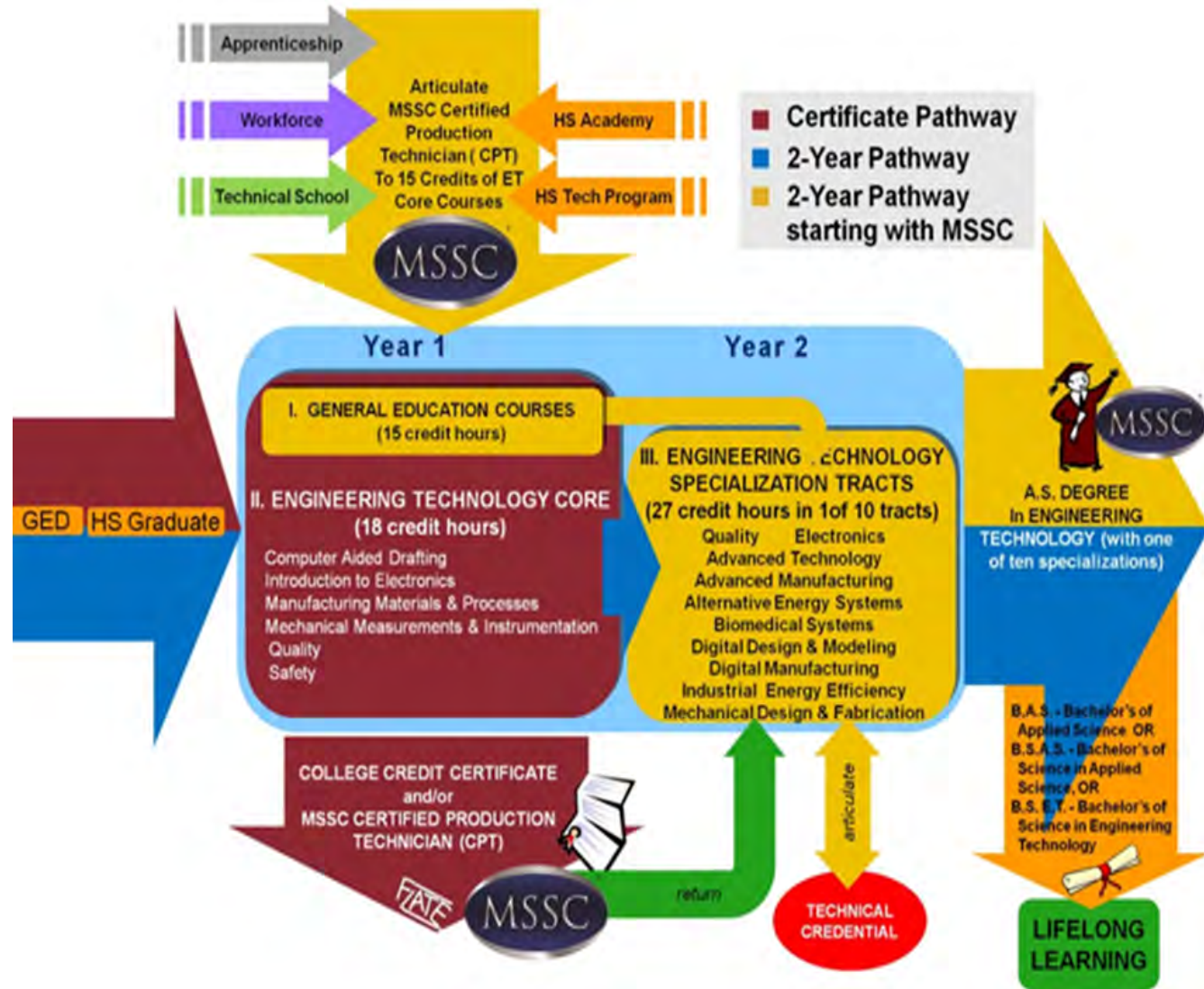
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Currently there are thousands of unfilled technical manufacturing jobs in Florida. Florida's award-winning A.S. Engineering Technology degree program was designed by FLATE to accommodate emerging or changing technologies as quickly as possible without having to add full two-year degree programs.



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# Florida Engineering Technology AS Degree

## I. General Education – 15 - 18 credit hours

English                      Science  
Math                          Social Science  
Humanities

## II. ET Core - 18 credit hours

Computer Aided Design                      Electronics  
Manufacturing Processes & Materials      Quality  
Mechanics & Instrumentation              Safety

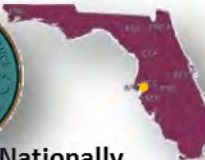
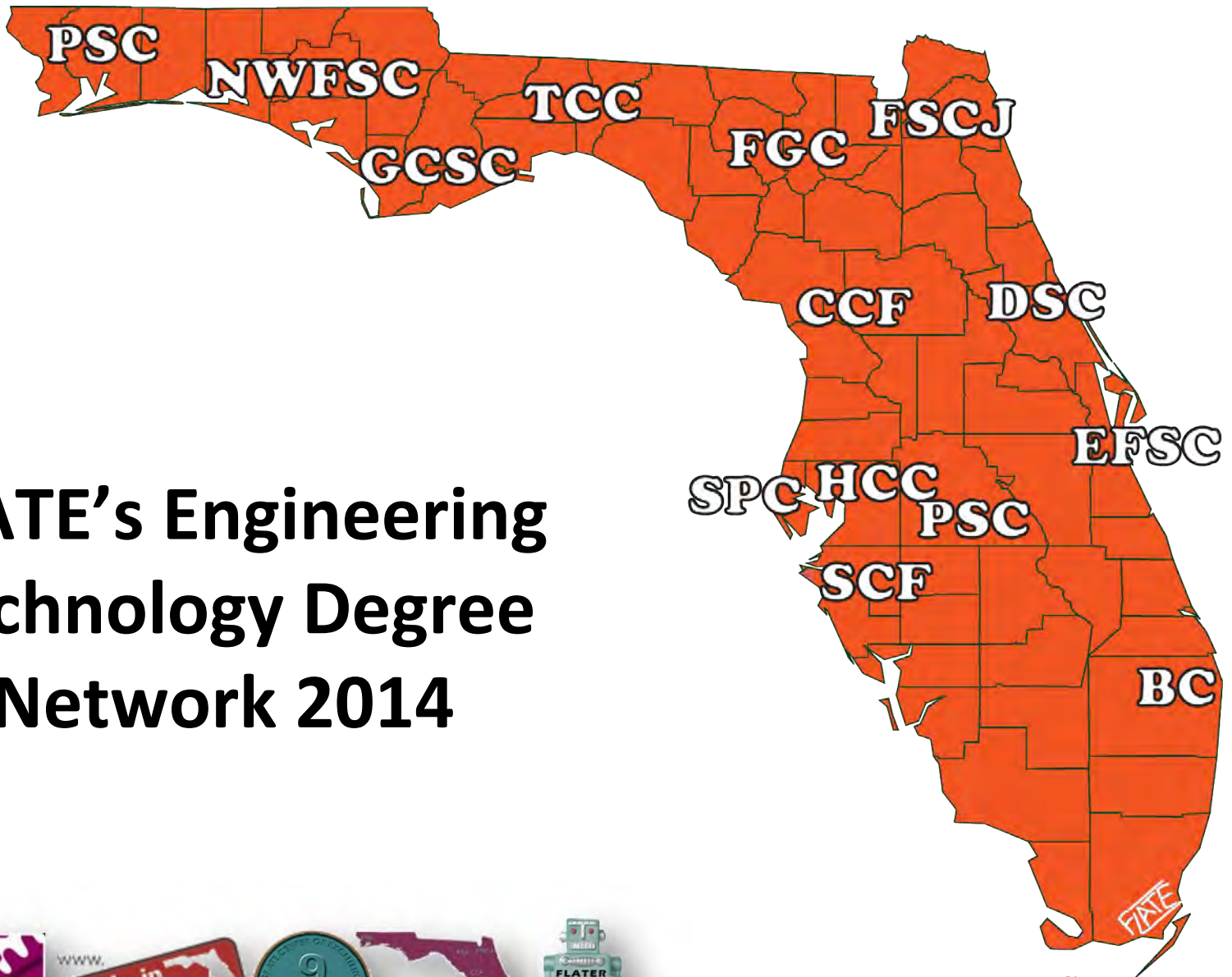


## III. 10 Specialization Tracks: 24 to 27 credit hours

Advanced Manufacturing                      Mechanical Design & Fabrication  
Biomedical Systems                          Digital Design & Modeling  
Digital Manufacturing  
Advanced Technology                      **Alternative Energy Systems**  
Electronics                                      **Industrial Energy Efficiency**

**60 semester hours**

# FLATE's Engineering Technology Degree Network 2014



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# Associate Degree and College Credit Certificates in Alternative Energy Systems

#	Curriculum Framework Standards
01.0	Interpret AC and DC circuit fundamentals related to energy technologies
02.0	Characterize alternative energy sources and technologies
03.0	Apply energy storage, distribution and conversion systems principles
04.0	Characterize the operation and performance of solar energy systems
05.0	Apply policy, regulation, and good business practices for alternative energy systems



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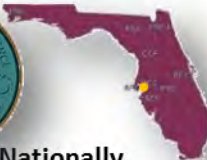
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*FLATE, FESC, EST<sup>2</sup> and many Florida community college partners captured regional and statewide industry workforce data for the energy sector.*

**2012  
Survey Results**  
**Occupations  
respondents  
intend to train  
students for  
included:**

- Smart Grid Technicians
- Energy Auditors
- Environmental Technicians
- Energy Technicians
- Sustainability Planners



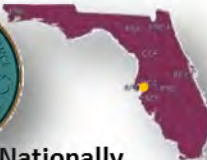
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# Associate Degree and College Credit Certificate for Industrial Energy Efficiency Technologies

#	Curriculum Framework Standards
01.0	Evaluate energy efficiency strategies used for industrial/commercial systems.
02.0	Evaluate energy assessment methodologies for the industrial/commercial sectors
03.0	Collect appropriate data to determine energy efficiency of industrial/commercial systems
04.0	Implement efficient operation of industrial/commercial system components
05.0	Troubleshoot integrated industrial/commercial utility equipment systems



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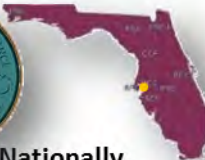
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# Energy Curriculum offered in the Florida State College System

## A.S. Engineering Technology Degree (Manufacturing Career Cluster)

COLLEGE CREDIT CERTIFICATES	COLLEGES OFFERING
<b>Alternative Energy Systems Specialist (CCC)</b> 18 (Primary) or 15 (Secondary) Credits	Broward College, Eastern Florida State College, Gulf Coast State College, State College of Florida,
<b>Industrial Energy Efficiency Specialist (CCC)</b> 21 (Primary) or 24 (Secondary) Credits	Florida State College at Jacksonville (2014)
A.S. DEGREES	COLLEGES OFFERING
<b>A.S. ET Alternative Energy Systems</b> 60 credit hours	Eastern Florida State College, State College of Florida, Gulf Coast State College
<b>A.S. ET Industrial Energy Efficiency</b> 60 credit hours	Florida State College at Jacksonville (2014)



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# Professional Development - Workshops

2012 - FESC's annual Conference at Santa Fe College, Gainesville

2013 - Florida Solar Energy Center) at Cocoa Beach

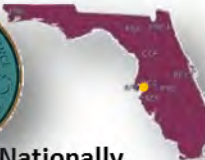
2014 - The Institute for Energy and Sustainability at Palm Beach State College.



Over 100 participants for the 3 events



Energy Systems Technology Technicians



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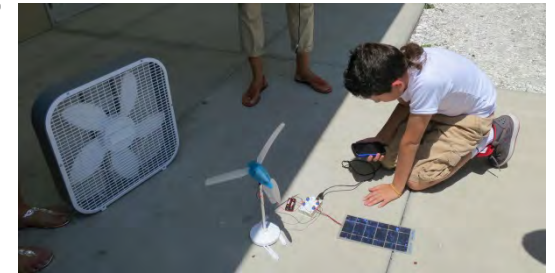


# OUTREACH - Summer Energy Camps & Teacher Workshops

The camps/workshops were part of a network of energy-related camps offered simultaneously at:



- Hillsborough Community College
- Tallahassee Community College
- Florida State College at Jacksonville
- Brevard Community College



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# Summer Energy Camps

- Exciting, hands-on activities centered on capturing and keeping students' interest in STEM (Science, Technology, Engineering and Math) subjects – specifically renewable energy.
- Students also learned about the many diverse and exciting careers available in the field of clean energy.
- ***100% of the students said that they learned new things about energy***
- ***95% stated that they felt the camp would help them making future career choices***
- ***50% said that they would consider a career in clean energy***

EST<sup>2</sup>

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# Summer Energy Camp Data

**2012:** 4 camps; 62 students; 35% female;  
79% African American/Hispanic

**2011:** 3 camps; 34 students; 41% female;  
94% African American/Hispanic

## Future Plans:

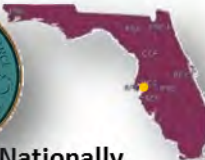
The EST<sup>2</sup> Team is working on consolidating 4 colleges' summer camps to provide a "camp-in-a-box" full of resources, lesson plans and suggestions for middle and high school students.

*"The experiments we did were a magnificent experience for an 8th grader!"*

*"We got to be creative and at the same time learn something"*



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# Thank You!



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*PRESENTATION available for download at:*

<http://flate.pbworks.com/w/page/51765115/FLATEPresentations>



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