

GRANT PROJECT UPDATES

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EST² Project Team

The National Science Foundation-funded Energy Systems Technology Technicians (EST²) 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.



ACTIVITY UPDATES

Curriculum – New Frameworks

**Professional Development -
Workshops**

**Outreach – Summer Programs for
Students**



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NSF Advanced Technological Education



Partners with Industry for a new American Workforce



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FLATE's VISION

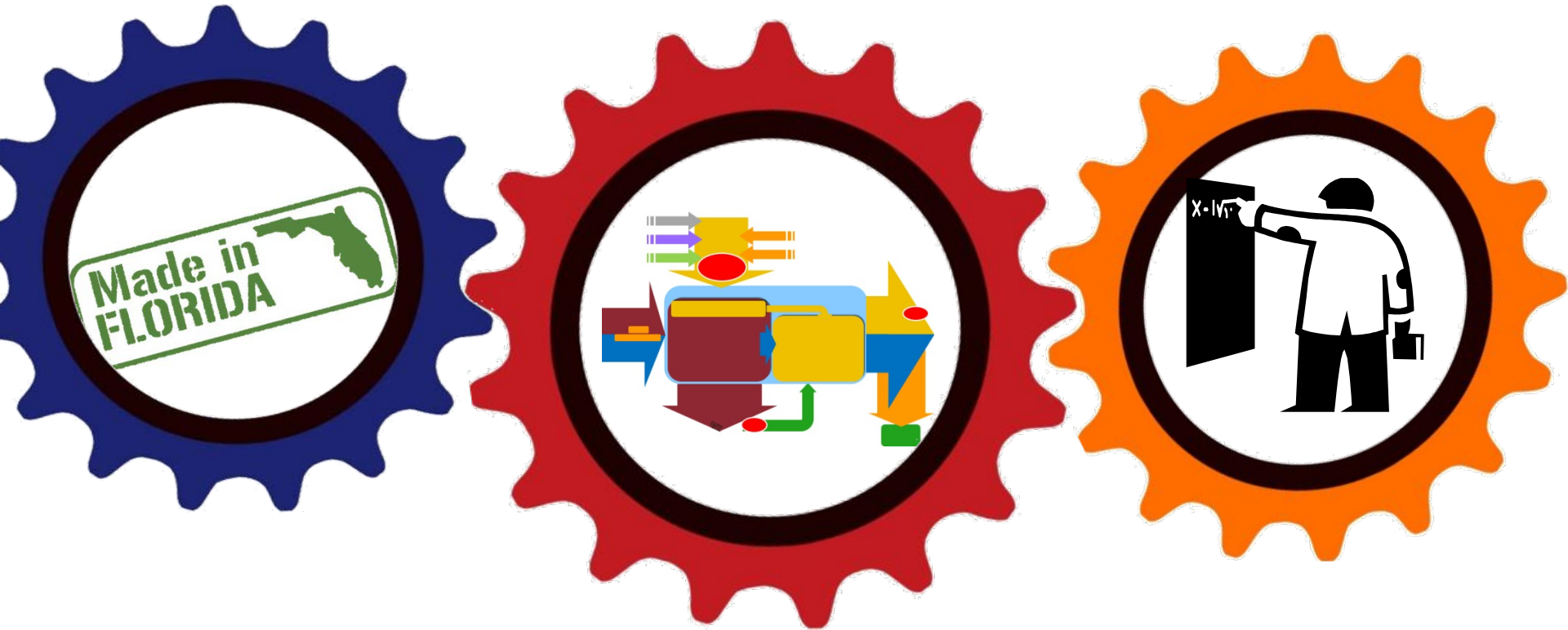
FLATE will be Florida's leading resource for education and training expertise, leadership, projects, and services to promote and support the workforce in the high performance production and manufacturing community.



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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Workforce Education in the Florida State College System

Guiding principles for developing of any curriculum framework

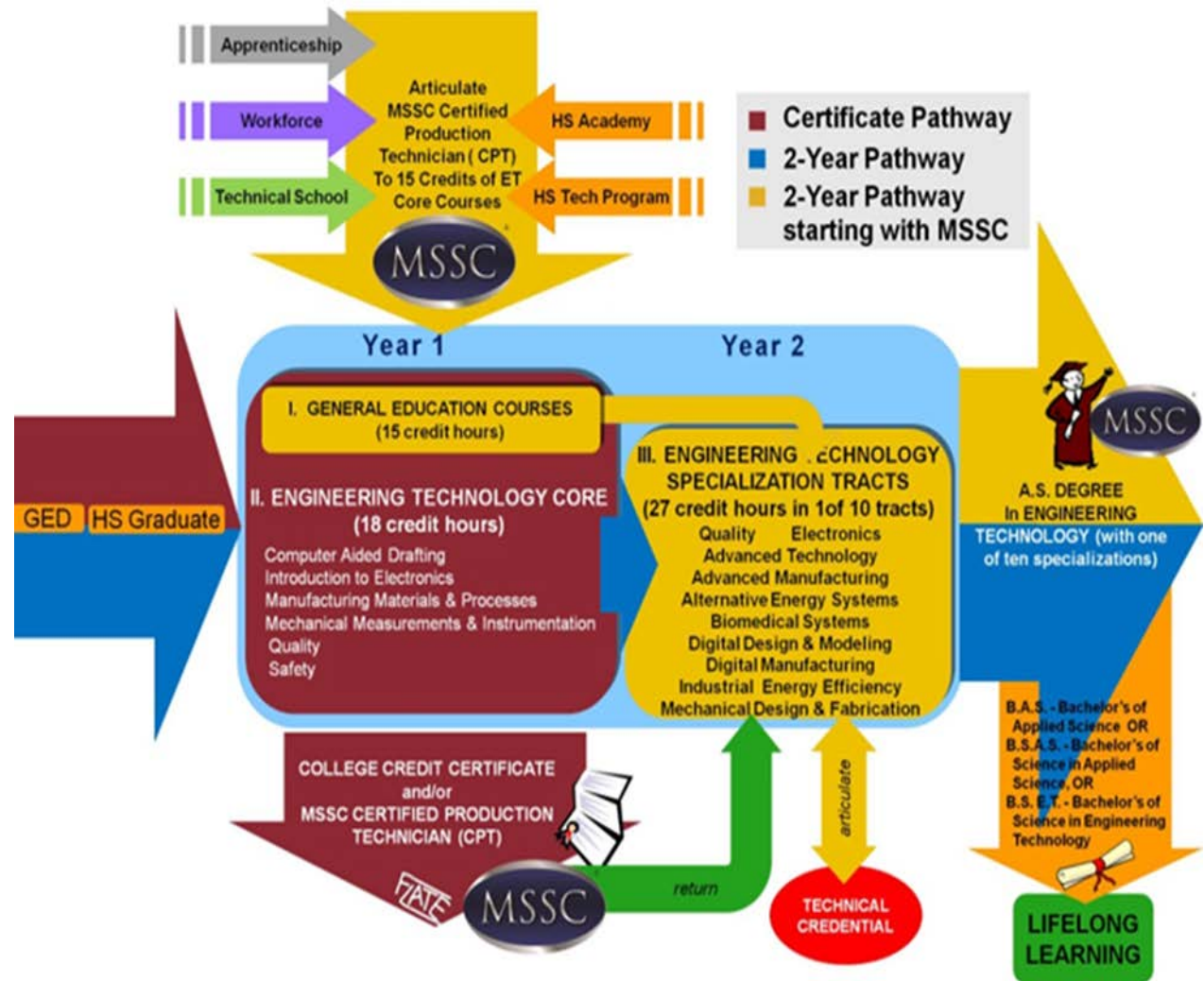
- industry review and validated technical skills
- targeted Florida occupations list
- U.S. Department of Labor occupation codes
- regional workforce needs projections
- workplace and employability skills
- general education component.



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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

Manufacturing Processes & Materials

Mechanics & Instrumentation

Electronics

Quality

Safety



III. 10 Specialization Tracks: 24 to 27 credit hours

Advanced Manufacturing

Biomedical Systems

Digital Manufacturing

Advanced Technology

Electronics

Mechanical Design & Fabrication

Digital Design & Modeling



Alternative Energy Systems

Industrial Energy Efficiency

60 semester hours

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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FLATE, FESC, EST² 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



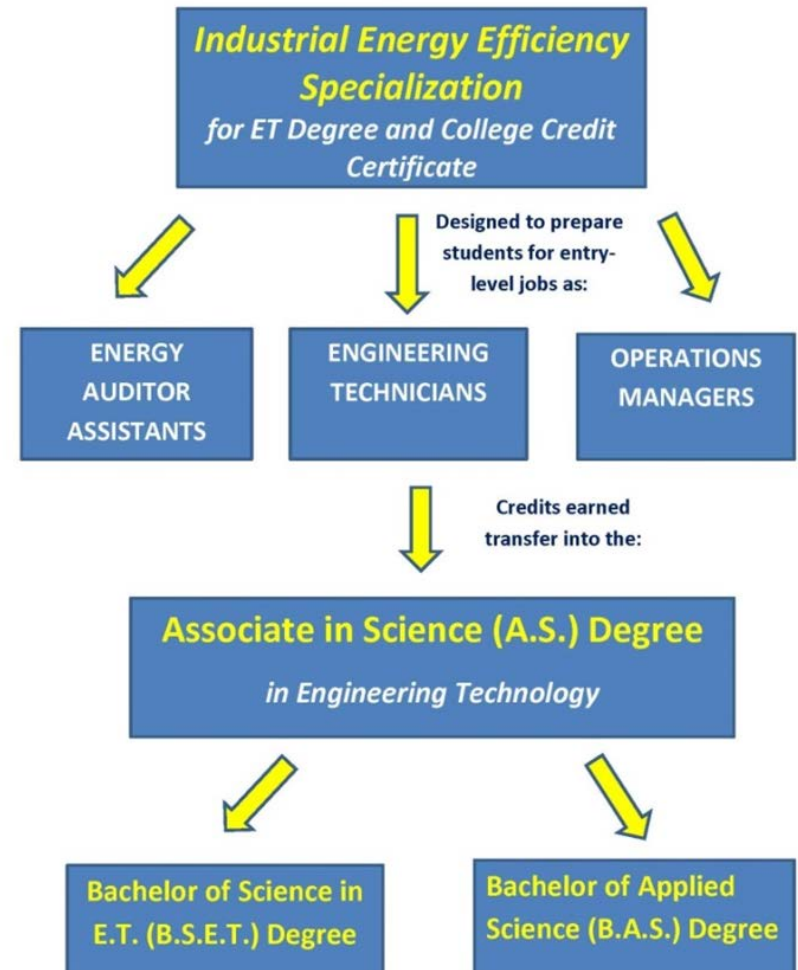
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- Green job sectors are flourishing
- Interest in reducing operating costs by maximizing energy efficiency is attracting students at all education levels.
- Florida has 2 important seamless pathways to 4- year degrees for the A.S. Engineering Technology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



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



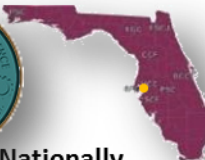
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Energy Curriculum offered in the Florida State College System

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

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



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Professional Development - Workshops

FLATE coordinated a second highly successful energy workshop hosted by the Florida Solar Energy Center (FSEC) in Cocoa, FL on January 25, 2013. Forty attendees attended a wide variety of presentations, went on a tour of the amazing FSEC facilities and participated in a Professional Development activity focused on solar energy applications.



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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:



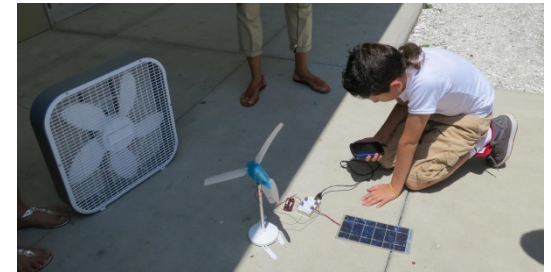
- Hillsborough Community College
- Tallahassee Community College
- Florida State College at Jacksonville
- Brevard Community College



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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*



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

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

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

Future Plans:

The EST² 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.



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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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BIOENERGY EDUCATION PROGRAM

FUNDED BY NSF-ATE GRANT

**BIOMASS CULTIVATION
ASSOCIATE OF SCIENCE
COLLEGE CREDIT CERTIFICATE**

**BIOFUELS TECHNOLOGY
ASSOCIATE OF SCIENCE
COLLEGE CREDIT CERTIFICATE**

Energy Education Update

Valencia College West Campus - Orlando



Key Facts

- Valencia FTE = 69,000
- Signed ACUPCC Summer 2009
- 2-time RecycleMania winner
- Tree Campus USA
- 6 LEED Gold (or equivalent) buildings certified



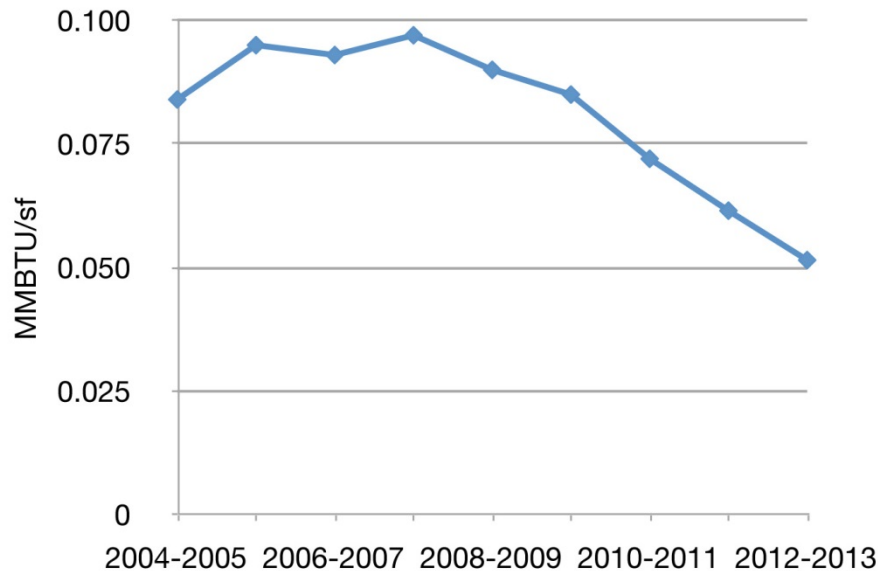
Sustainability Across the Curriculum

- 20 hour Professional Development Certification
- 5th course currently running (10 faculty/staff)
- 48 completers to date
- Cross discipline



Energy Use Reduction

- New central chillers, lighting upgrades & de-lamping
- Surveyed faculty, staff and students on climate control
- Reduced energy use per SF:



EV showcase + Earth Day Events

- Promoting ride-sharing, bike trails
- EV charging stations (10 on West campus, 2 East)



VALENCIA
ACHIEVES OVER



\$2 MILLION

**IN ENERGY
SAVINGS
SINCE 2011**