

## **Florida Advanced Technological Education Center (FLATE)**

### ***Education - Technician Based Workforce*** **(Progress Report May 2013)**

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**Description:** FLATE (Florida Advanced Technological Education Center) will partner with FESC to develop statewide curriculum frameworks for technical A.S./A.A.S. degree programs supporting existing and new energy business sectors. FLATE will develop and have processed through the FLDOE the industry-validated student competencies of the frameworks. FLATE will also develop new courses required for each new program of study. Additionally FLATE will help state and community colleges implement the new frameworks in their institutions. To support the new curriculum, FLATE will work closely with the FESC Public Outreach and Industry Partnership programs to provide professional development opportunities for teachers and faculty to upgrade and update their knowledge base.

**Budget:** \$300,000.

**Universities:** FLATE/Hillsborough Community College

**FLATE External Collaborators:** Brevard Community College; Tallahassee Community College; Daytona State College; Central Florida Community College; Polk State College; Florida State College at Jacksonville; Valencia Community College; Palm Beach State College; School District Hillsborough County; Florida Department of Education – Division of Adult and Career Education; West Side Technical School; USF College of Engineering; Madison Area Technical College ATE project for Alternative Energy certifications; Milwaukee Area Technical College Energy Conservation and Advanced Manufacturing Center (ECAM); Florida Energy Workforce Consortium (FEWC); TECO; Progress Energy; ISTE (Ibero Science and Technology Education Consortium), Usurbil GLBHI (Spain); TKNKA - Innovation Institute for Vocational Training (Spain); Center for Energy workforce Consortium (CEWD); UF Industrial Assessment Center; CREATE NSF Center for Alternative Energy; EST2 NSF ATE Grant project; DOE's Office of Energy Efficiency & Renewable Energy; Gulf Coast State College; Palm Beach State College; University of South Florida's College of Engineering; University of Miami; University of Alabama; Rutgers University; Energy Reduction Solution, SMC Corporation of America, Energy Conservation Group; Florida Solar Energy Consortium; Tampa Bay Regional Business Plan Energy Efficiency and Conservation Sub-Committee.

#### **Progress Summary**

The development of the process for the Florida State College System to respond to FESC's long term strategy to bring energy related technologies out of the Florida University System is well underway. Activities this year included identifying the current status of credit and non-credit energy related courses within the State College System. In addition, online curriculum related to Alternative Energy Systems has been developed. FLATE has the college contacts and process in place to respond to any FESC and/or regional economic development authority request to provide assistance to a designated State College because of a technician workforce development need as identified or triggered by a new or expanding energy related company's operations in the State.

Since October 1, 2012 FLATE achieved several milestones. Together with the National Science Foundation-funded Energy Systems Technology Technicians (EST<sup>2</sup>) project team, FLATE has developed a new Industrial Energy Efficiency specialization for the Engineering Technology (ET) Degree and associated College Credit Certificate.

Engineering Technicians are widespread in a variety of occupational areas, including electronics, applied technologies, manufacturing, and composites fabrication, to name a few. The new Industrial Energy Efficiency specialization track and college credit certificate (CCC) for the AS/AAS degree in Engineering Technology, comes at a time when green job sectors such as energy efficiency, are flourishing. Interest in reducing operating costs through energy efficiency maximization is growing significantly, both in Florida and throughout the nation. Collaboration with industry subject matter experts has allowed us to tailor the energy efficiency specialization curriculum and match training directly to industry needs.

Industry partners have indicated a need for energy efficiency measures to help their bottom line, and as a result the new specialization/CCC is designed to help incumbent technicians in manufacturing or industrial occupations find ways to save money through efficiency in their industrial setting, or prepare students to become energy managers or auditors. Upon completion of the program, students will be armed with the knowledge and skills necessary to implement energy efficiency strategies in industrial processes and systems, and as a result impact the bottom line. It will help the student prepare to become a SEP-Superior Energy Performance Certified Systems Practitioner and a CEM Certified Energy Manager. The program will also help train workers who will assist a company in achieving the ISO 50001 standards related to energy management, as well as ISO 14001:2004 to assure a company's stakeholders that measures are being taken to improve their environmental impact.

The EST<sup>2</sup> team (comprising individuals from Brevard Community College, Florida State College at Jacksonville, Tallahassee Community College and Hillsborough Community College), submitted the framework to the Florida Department of Education at the beginning of 2013 and colleges will be able to implement it in the 2013-2014 academic year.

Program Title: Industrial Energy Efficiency Specialist (CCC)

Career Cluster: Manufacturing

CIP Number	TBD
Program Type	College Credit Certificate (CCC)

Program Length        21 Credit Hours (Primary), 24 Credit Hours (Secondary)

This certificate program is part of the Engineering Technology AS/AAS degree program (1615000001/0615000001).

FLATE and FESC coordinated a second highly successful energy workshop (the last one was held in September 2011 in Gainesville), for high school and college educators, as well as industry partners, 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. Feedback received was overwhelmingly positive.

FLATE and FESC coordinated an Advisory Working Group Meeting in Orlando, FL on February 28, to develop a curriculum plan for the Industrial Energy Efficiency Technician (IEET) Specialization. Sixteen members from academia and industry worked on the following focus statement for the workshop, "An industrial energy efficiency technician implements energy efficiency strategies in industrial processes and systems in order to improve an organization's bottom line and reduce environmental impacts."

As a result of the meeting, a comprehensive list of IEET Resources was compiled and classes were identified as well as their associated learning outcomes.

Finally, FLATE regularly updates / presents information about energy curriculum and training issues at the statewide Florida Engineering Technology Forum that meets twice per year at various colleges across the state. Many of these schools are looking to add “energy” curriculum and/or programs and are requesting guidance on what industry is asking for across the state and what and how other colleges are implementing credit programs. The goal of these activities is to keep colleges working together and sharing curriculum rather than develop independent programs not properly aligned to statewide frameworks. The ET Forum most recently met April 4 - 5 in Clearwater at St. Petersburg College.

**Activities for the 2012-2013 year are listed below.**

- Presented at the Florida Association of Science Teachers Conference in October, 2012 with Mark Dick (Tallahassee Community College), “Energy Camps that are Energizing”, highlighting the Teacher Energy Workshops and Energy Summer Camps for students offered over the summer by all EST 2 partners.
- Attended the Florida Energy Workforce Consortium Meeting in November 2012 and March 2013.
- Presented “Industrial Energy Efficiency Competencies for Associate Degree Programs”, at the Interstate Renewable Energy Council (IREC) Clean Energy Workshop in Albany, NY, November, 2012.
- Attended the Manufacturers Association of Florida Summit in December 2012 and surveyed 40 manufacturers about the need for energy efficiency trained technicians. The overwhelming majority of manufacturing members who completed the survey strongly supported the new IEET CCC since manufacturers need solutions to their high cost associated with energy consumption. A focus group meeting was held in Orlando, in February 2013 with industry, university faculty, tech center faculty and state college personnel/faculty. The focus group meeting was a scaled down, Designing a Curriculum (DACUM) that produced potential courses and course content for the proposed IEET program. The course creation validated the IEET program framework content that went to the FL Department of Education for approval at the beginning of this year, and will be implemented in the 2013-2014 academic year.
- Coordinated a second Community College Energy workshop for 40 attendees at the Florida Solar Energy Center (FSEC) in Cocoa, January 25, 2013.
- Was instrumental in the selection of Hillsborough Community College as a winner of the (Sustainability Education and Economic Development) Green Genome Award which recognizes exemplary community colleges nationwide that have taken a strategic leadership role in sustainability and green economic and workforce development.
- Attended and was part of an Energy Efficiency and Conservation Panel at 2013 Beyond Sustainability 37<sup>th</sup> Annual Conference at Hillsborough Community College, Plant Ybor City in February.
- Participated in, “An Energy Literate Citizenry from K-to-Gray: A Webcast on the Department of Energy’s Energy Literacy Initiative”, in March.
- FLATE hosted the Engineering Technology (ET) Forum in St. Petersburg on in April. (Energy Efficiency Specialization was presented).
- Planning is underway to host a third summer energy program for under-represented middle school students, to be held July 8 – 11 at HCC’s SouthShore Campus in Ruskin, FL in conjunction with the EST2 grant partners (BCC, TCC and FSCJ).

Funds leveraged/new partnerships created: FLATE has leveraged its NSF and FESC resources to help Brevard Community College to apply for and be awarded a very competitive NSF grant, \$ 500,000, implement two energy related specialization within the A.S. Engineering Technology Degree. In addition,

FLATE was able to secure a \$ 100,000 award from NSF to develop a faculty/student interchange that will allow Florida to benefit from the well advanced energy related technology educations practices at technology colleges in Spain.