

Florida Advanced Technological Education Center (FLATE)

Education - Technician Based Workforce

PI: Marilyn Barger

Description: FESC partnered with Florida Advanced Technological Education Center (FLATE) to develop statewide curriculum frameworks for technical A.S./A.A.S. degree programs supporting existing and new energy business sectors. FLATE is in the process of developing and processing through the FLDOE the industry-validated student competencies of the frameworks. FLATE will also develop and coordinate faculty professional development activities as required. FLATE will develop new courses required for each new program of study. Finally FLATE will help state and community colleges implement the new frameworks in their institutions.

Budget: \$300,000.

Universities: FLATE/Hillsborough Community College

FLATE External Collaborators: Brevard Community College; Tallahassee Community College; Daytona State College; Central Florida College; Polk State College; Florida State College at Jacksonville; Valencia Community College; School District Hillsborough County; Florida Department of Education – Division of Adult and Career Education; West Side Technical School; WFI Banner Center for Energy; Advanced Technology for Energy and Environment Center (ATEEC); University of West Florida, Dept. of Construction Technology; WFI Banner Center for Construction; WFI Banner Center for Clean Energy; 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); TKNIKA - 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.

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.

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.

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Since October 1, 2011 FLATE has achieved several milestones. Together with the National Science Foundation-funded Energy Systems Technology Technicians (EST²) project team, FLATE has been developing a new Industrial Energy Efficiency specialization for the Engineering Technology (ET) Degree and associated College Credit Certificate. Experts from industry, government and academia have been involved in this collaborative effort and instrumental in ensuring that the new specialization is directly aligned with current industry needs. The specialization's first draft is now complete and the framework will be submitted to the Florida Department of Education in the fall of this year so colleges can implement it in the 2013-2014 academic year.

In March, a short survey was administered to gather data to ensure the new framework is comprehensive and covers all areas necessary to produce the skilled workforce needed in this area. In addition, it provided an opportunity to identify individuals interested in collaborating to work on the new curriculum framework. Occupations respondents intend to train students for, included Energy Technicians, Environmental Technicians, Sustainability Planners, Smart Grid Technicians, Energy Auditors and any generally all individuals involved in developing and implementing Energy Management Programs for their company. The vast majority of respondents were very interested in collaborating to craft the new curriculum framework.

The Industrial Energy Efficiency specialization track comes at a time when interest in reducing operating costs through energy efficiency maximization is growing significantly both in Florida and throughout the nation. The new specialization is designed to provide the training necessary to teach manufacturing, industrial, and other appropriate technicians, such as HVAC technicians or electricians, to save energy costs on the plant floor. Upon completion of the program students will be armed with the knowledge and skills necessary to implement energy efficiency strategies in industrial processes/systems, and as a result impact the bottom line.

In September 2011, FLATE and FESC sponsored an energy workshop for high school and college educators at the Center for Innovation and Economic Development at Santa Fe College in Gainesville, FL. Following the success of last year's event, FLATE will be coordinating a second workshop held at the Florida Solar Energy Center in Cocoa in February or March of 2013.

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.



SPECIFIC ACCOMPLISHMENTS for the current reporting period:

- Worked on Researching and defining energy career pathways. Created and published flowchart illustrating pathways.
- Researched an identified current energy related course articulations.
- Researched and identified all High Schools, Colleges and Universities offering energy-related courses/programs, building on the “Survey of Colleges Offering Energy Programs” administered in January 2011.
- Attended 2011 Beyond Sustainability 36th Annual Conference at Hillsborough Community College, Plant City in November.
- Participated in Sustainability Education & Economic Development (SEED) Webinar- Alternative Fuel Vehicles: New Technology, Refined Workforce Programs in November 2011.
- Attended Sustainability Education & Economic Development (SEED) Webinar-Community Colleges Leading Rural-Based Green Economy Initiatives (December 2011).
- Updated FESC Web Education pages.
- Updated the list of Energy Programs and Institutions offering them on the FESC web site.
- Continuous update of FESC pages housed on FLATE’s site.
- In March 2012, design and administered an online survey to gather data for development of the new Energy Efficiency Specialization for the ET Degree.
- Participated (remotely) in the FEWC State and National Outreach Meeting (March 2012)
- Attended Train-the-Trainer Energy Workshop at Florida State College, Jacksonville in May, to prepare for Summer Energy Camps.
- Hosted a second summer energy program for under-represented middle school students (July, 2012) and an Energy-related Professional Development Workshop for middle and high school teachers (June, 2012), in conjunction with the EST2 grant partners (BCC, TCC and FSCJ) and the University of South Florida.
- FLATE took a delegation of eight students, five faculty members and two administrators from Florida’s community and state colleges on a 21 day international technician training program to Spain (June, 2012). The three week program provided students with an outstanding technical and cultural learning experience. For the second year, students enrolled in the engineering technology A.S. degree program and faculty members at Hillsborough Community College, Polk State College, State College of Florida, and Brevard Community College, participated in a structured technical education and training experience at IEFPS Usurbil GLBHI—a technical college in the Basque region of Spain.
- Presented a poster at the 2012 Energy Summit in Orlando.
- 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.
- Will be presenting at the Florida Association of Science Teachers Conference in October, 2012.
- Community College Energy workshop at the Florida Solar Energy Center (FSEC) in Cocoa planned for February/March 2013.



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Energy Efficiency Specialization Curriculum Framework Development

Collaborating with the National Science Foundation-funded Energy Systems Technology Technicians (EST²) project team to design a new specialization for the Engineering Technology (ET) Degree and associated College Credit Certificate. (The EST² project team comprises individuals from Brevard Community College, Florida State College at Jacksonville, Tallahassee Community College and Hillsborough Community College). Framework details are being refined.

A short survey was conducted in March to gather data to ensure the new framework is comprehensive and covers all areas necessary to produce the skilled workforce needed in this area. In addition, it provided an opportunity to identify individuals interested in collaborating to work on the new curriculum framework. More than a third of survey respondents indicated that they were currently working on curriculum including energy efficiency in industrial/commercial settings components. The vast majority of respondents were very interested in collaborating to craft the new curriculum framework. The EST² team plans to submit the framework to the Florida Department of Education in the fall of this year so colleges can implement it in the 2012-2013 academic year.



Summer Energy Workshop for Secondary Teachers

This workshop, held at the University of South Florida, from June 26-27, was designed to arm teachers with fun, yet challenging content and hands-on activities to help their students make real-life connections to the world of renewable energy technologies. Teachers were provided with current, in-depth content about wind energy, solar energy, fuel cells and nuclear energy, as well as participating in several exciting hands-on activities to take back to their classrooms. Unfortunately bad weather led to the cancellation of the first day of the workshop and only 13 attendees (out of 25 confirmed registrants) were present for the remaining two days. Feedback received was positive and we plan a similar workshop next summer.



Summer Energy Camp

2012 marked the second year of the middle school summer energy camp held July 9 -12 at Hillsborough Community College's SouthShore Campus. Participating students were rising 7th and 8th graders in the AVID (Advancement Via Individual Determination) ELCR (English Language College Readiness) program at Beth Shields Middle School in Ruskin, FL. Students learned about many aspects of renewable energy technologies. They were introduced to energy concepts including fossil fuels with their environmental impacts and the science of electricity generation through several hands-on activities.



The camp was planned for 25 students and 25 students were confirmed by the Hillsborough County Public School System. However, due to daily bus issues student attendance fluctuated daily from 10 – 13 students. Next year's camp schedule will be modified to eliminate problems with bussing/transportation.

Overall the camp was a resounding success, with great media coverage – newspaper and TV (Bay News 9),





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coverage! The kids really enjoyed the hands-on activities and the pre-/post-test data showed the average camper learning increase to be 24%. All students agreed that attending the camp has helped them in making future career choices and showed that 75% are now considering a career in a STEM area.

Florida Energy Summit

At the summit, FLATE highlighted curriculum development and educational outreach efforts in partnership with FESC during the last year. FLATE’s poster presentation, “Energy Education for Florida’s Future Technician Workforce”, described the past work of the FLATE – FESC partnership as well as outlining the new Industrial Energy Efficiency specialization for the Associate of Science (ET) degree and associated College Credit Certificate, designed to match training directly to industry needs. FLATE materials were also displayed on the FESC table in the Energy Summit Exhibit Hall.



Florida Association of Science Teachers (FAST) Conference

FLATE and Tallahassee Community College will be presenting, “Energy Camps that are Energizing” at the FAST annual conference in October. The presentation will highlight Summer Energy Camps and Teacher Energy Workshops held at Hillsborough and Tallahassee Community Colleges over the summer. The resources provided to participants to host their own energy education events will be summarized.

FESC Community College Energy Workshop planned

Following the success of the 2011 Workshop held at Santa Fe College’s Center for Innovation and Economic Development in Gainesville, a similar event is planned for later this year, or in early 2013, at the Florida Solar Energy Center in Cocoa.

