

Educating an Alternative Energy Workforce

Florida Energy System Consortium (FESC) is using a systems approach to develop a solution to Florida's 21st century energy needs. An important part of that need is the training and education of that energy sector workforce. By the nature of energy related technologies, as well as energy production and delivery, this workforce will be skills-driven and performance-tiered.



Making sure Florida's workforce is prepared for its energy future means those who will enter that workforce need to develop the necessary skills today. With the proper certificates, credentials, and degrees, not only will energy-related career prospects improve, but the industry sector will reap the benefits of a pool of skilled employees. FESC is partnering with FLATE, Florida Advanced Technological Education, to develop this lifelong learning pathway.

FLATE is one of 36 National Science Foundation (NSF) Advanced Technological Education regional Centers of Excellence and serves as a link among Florida's high tech manufacturing sectors, Florida's education system, Florida's Banner Centers, and a workforce ready for training. With an anticipated increase in renewable energy jobs in Florida, FLATE's involvement with technical workforce programs pairs well with the FESC's

goal to prepare a qualified energy workforce and the organization's extensive outreach program.

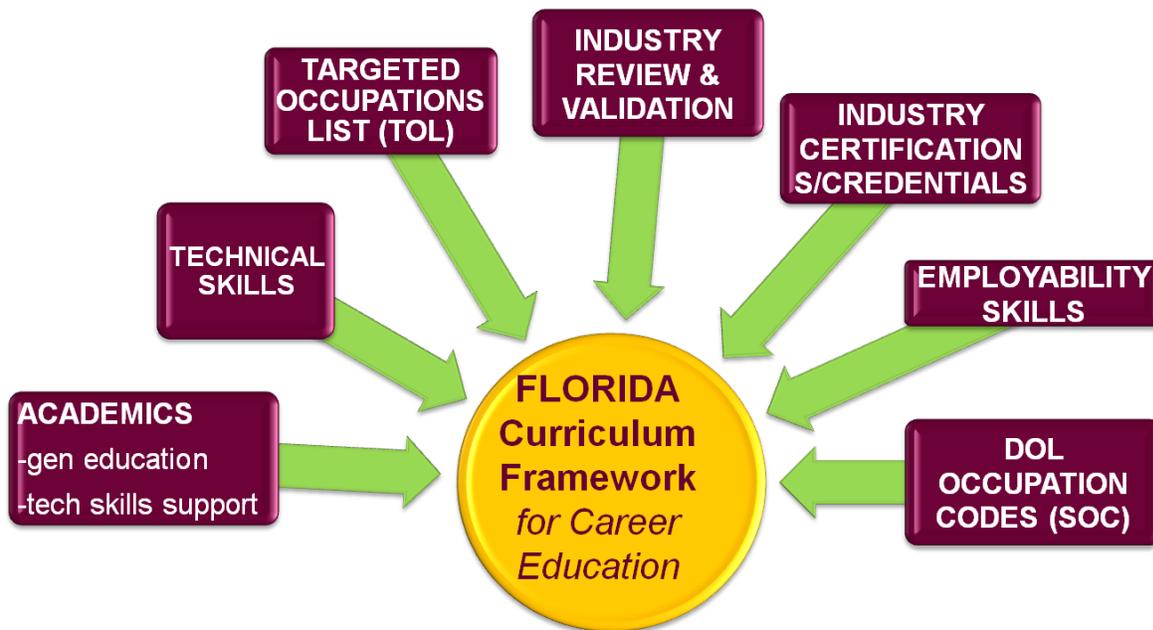
Marilyn Barger, Ph.D., P.E., is the executive director and a principal investigator of FLATE, located at the Hillsborough Community College campus in Brandon, FL. Under her leadership, FLATE has developed a curriculum model that blends nationally recognized credential skills with Florida's two year AS and AAS degree structure, allowing articulation of 15 credit hours with the credential.

As a specific component of FESC's goal, FLATE partnered with Brevard Community College and drafted a curriculum that focuses on the skills needed to work in the alternative energy field. Once the curriculum is approved by Florida's Department of Education (FLDOE), other colleges in the Florida State College system may choose to add this specialty to the degrees and coursework they currently offer.

The specialization concept is a unique concept developed by FLATE and integrated into the FL DOE approved AA or AAS degree in engineering technology. FLATE developed this original engineering technology 60 credit hour degree which has three components: general education; engineering

technology core; along with specialization tracts. The focus on alternative energy will be included as part of the specialization tract. Alternative energy course work can also be used to earn a college credit certificate (CCC). This 15 credit hour certificate consists of technical courses only and provides a strong skills and knowledge background for technical alternative energy workers.

“The curriculum framework is centered on knowledge skills and competency, not specific classes,” says Barger. “It is up to the colleges choosing to implement the program to define what classes they think will meet the criteria.”



The FLDOE approved the alternative energy framework in March 2010. Education and subject matter experts at FLATE are already assisting community colleges with evaluating existing courses and developing new curriculum to support the new framework. It has already been adopted by Brevard CC for Fall 2010.

FLATE's model builds flexibility into its curriculum framework. Eighty percent of the competencies developed for these frameworks include specific requirements that concentrate on solar energy technologies, basic electronics, introductory information and skills for all alternative energy technologies, along with the knowledge of the regulations and good business practices important in this emerging industry. The remaining 20 percent can be determined by the individual colleges. This degree of freedom allows colleges to comply with approved degree frameworks and still choose to complete their curriculum based on alternative energy prospects of their local industries.

“Because solar is the main focus in Florida, in terms of alternative energy, the framework emphasizes it. The framework includes specific requirements for electronic skills, circuits, and photovoltaics,” Barger

says. “The remaining coursework can focus on other technologies like wind, geothermal, or biomass production, which might be emphasized in different parts of the state.”

Besides preparing students for careers in the alternative energy sector, the program has other benefits. While it’s anticipated that jobs in alternative energy will continue to grow, with current economic conditions, nothing is certain. To broaden job prospects, the degree can be applied to both alternative and more traditional forms of energy generation. And the two-year degree is transferrable. Students with an AS degree in engineering technology can transfer to a four year college to pursue a bachelor’s degree in engineering technology or a Bachelor of Applied Science (BAS) degree.

Richard Gilbert, Professor of Chemical and Biomedical Engineering at the College of Engineering at the University of South Florida, member of the FESC Education Committee, and a co-principle Investigator for the NSF Grant that supports FLATE activities, summarizes the FESC education initiative as follows: “The way Florida develops, implements, and deploys its energy usage strategy is operationally dependent on the quality and expertise of the workforce Florida prepares to accomplish that task. FLATE represents a FESC resource that enjoys statewide recognition that already works with Florida's industry, education, and advanced technology workforce sectors. The FLATE training and education model is a perfect fit for the skills-focused regulation required energy industry.”