



# Building the Technician Workforce for Florida's Energy Future

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Florida Energy  
Systems Consortium  
*Preparing tomorrow's energy workforce*

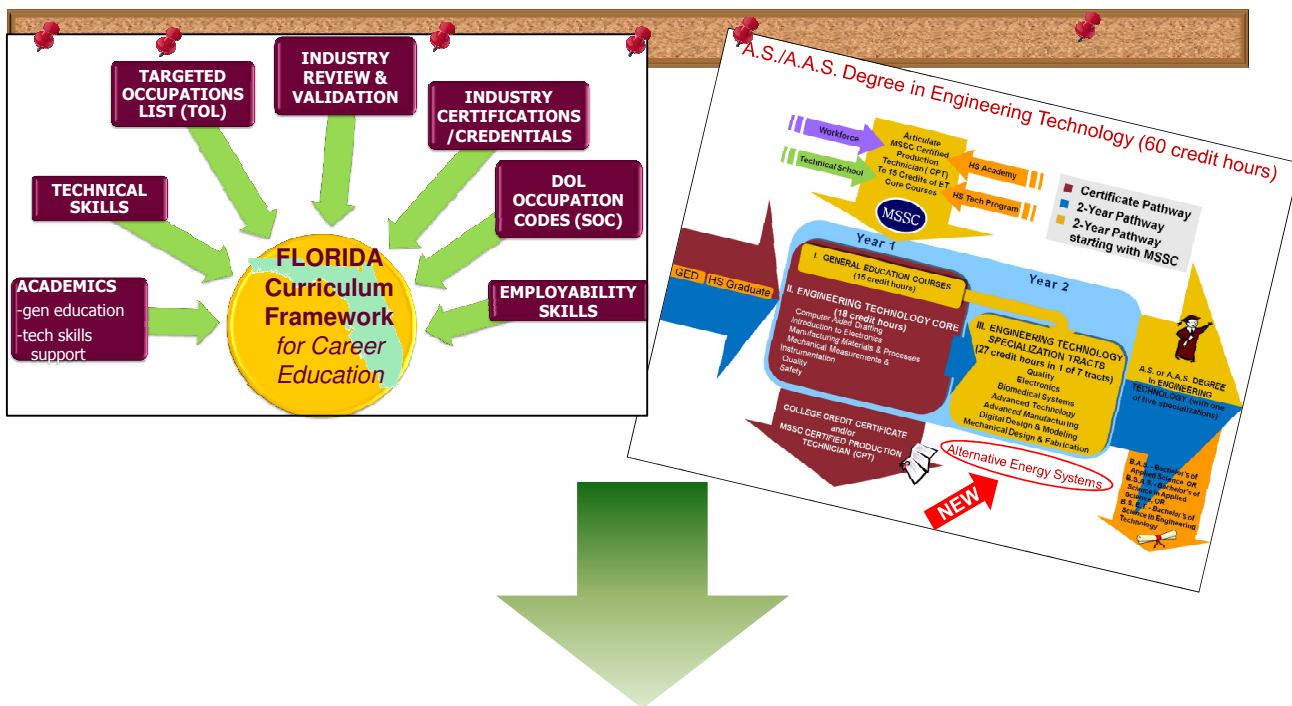
**HILLSBOROUGH**  
Community College

**USF** UNIVERSITY OF  
SOUTH FLORIDA  
COLLEGE OF ENGINEERING

## Abstract

In 2008, Florida's legislature directed, via FESC, the Florida Energy Systems Consortium, 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. The current strategy is entertaining a mix of conventional, nuclear, solar and bio-fuels for generation and a range of options to make Florida "green" within a "smart" grid. In that same legislative action, FLATE, the National Science Foundation Advanced Technological Education Center for Florida, was commissioned to partner with FESC to prepare and execute a technician workforce plan that will put an alternative energy workforce in place on time. This poster will summarize that plan, outline the skill sets needed for these alternative energy sector pathways, and indicate Florida's current progress to produce the workforce needed as new alternative energy system manufacturing and generation systems come on line.

## Florida Curriculum Development Components



No.	Curriculum Framework Standards (Alternative Energy Systems Specialization)
12.0	Interpret AC and DC circuit fundamentals related to energy technologies.
13.0	Characterize alternative energy sources and technologies.
14.0	Apply energy storage, distribution and conversion systems principals.
15.0	Characterize the operation and performance of solar energy systems.
16.0	Apply policy, regulation, and good business practices for alternative energy systems.



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•FLATE has partnered with Brevard Community College, Tallahassee Community College, and Florida State College at Jacksonville to implement an Energy specialization pathway at their respective colleges.

•Brevard Community College implementing AESS Certification in Fall 2010.

## Alternative Energy Systems Specialist

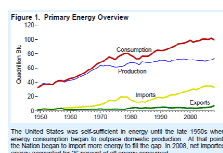
College Credit Certificate – Code AECC

This certificate program will prepare students to meet the industry-specific skills needed for technicians in the new and emerging alternative and renewable energy fields, including occupational titles such as Electrical Technician, Industrial Engineering Technician, Solar Photovoltaic Installer and Solar Power Plant Technician, Solar Thermal Installer and Technician, Energy Auditor, and Smart Grid Technician. This program also provides supplemental training for persons previously or currently employed in occupations related to energy production, distribution and storage.

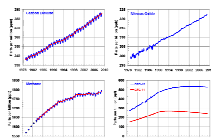
MAJOR COURSES		Credits Needed: 18
EET 1084	Introduction to Electronics	3
EET 1551	Distributed Electrical Power Generation and Storage	3
EETC 2550	Photovoltaic Technology	3
EST 1800	Solar Thermal Technology	3
EST 1830	Alternative/Renewable Energy Technology	3
ETI 1701	Industrial Safety	3
Total Credit Hours: 18		

Brevard Community College courses leading to AESS certification

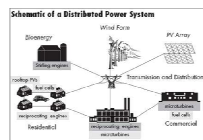
FLATE is developing modular content for the introductory course:  
EST1830 Introduction to Alternative/Renewable Energy Technology



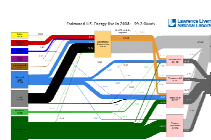
1. Introduction and Statistical Data



2. Climatic Effects



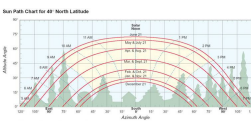
3. Distributed Generation



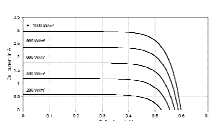
4. Energy Flow Analytics

**Newton's Second Law**  
**Force = mass x acceleration**  
**Dimensionally**  
 $\text{Force} = (\text{mass}) (\text{velocity}/\text{second})$   
 $= (\text{mass}) (\text{length}/\text{time})/\text{time}$   
 $= (\text{kg}) (\text{m}/\text{s}^2) = \text{kg m/s}^2$   
 $= \text{Newton (N)}$   
 So, the force of gravity on us  
 $F_{\text{gravity}} = m \cdot g = (80 \text{ kg})(9.8 \text{ m/s}^2) = 784 \text{ N}$

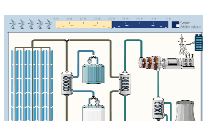
5. Basic Energy Science



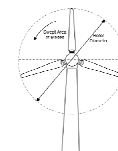
6. Sun Energy



7. Photovoltaics



8. Solar Thermal

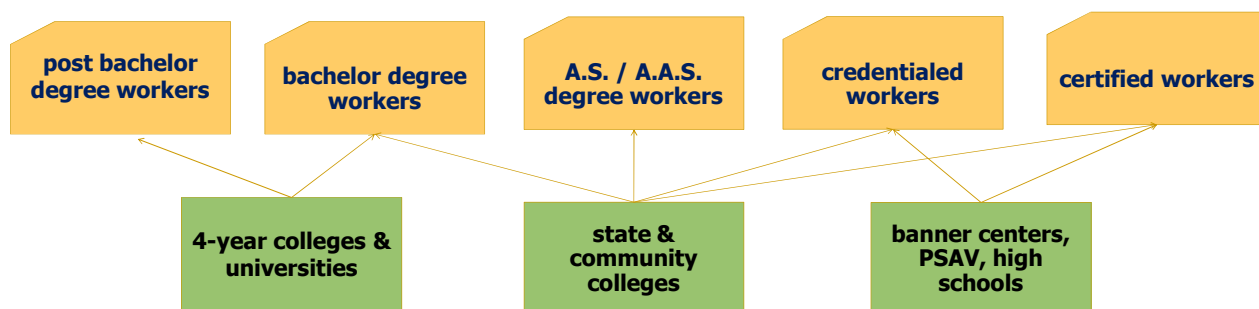


9. Wind Energy



....more under construction....

## Multiple Tier Education Delivery Approach



FESC's education focus is to ensure Florida has the necessary talent to support the developing and emerging energy industries of the future.

A holistic approach to energy education requires integration of three independent educational infrastructures: K-12, the State and Community Colleges, and the Universities, as well as community education.