

**Central Carolina Community College  
Program Planning Guide**

**Sustainability Technologies Credential:  
Certificate in Renewable Energy (C40370RE)**

The Renewable Energy certificate is designed to prepare individuals for employment in environmental, construction, renewable energy, or related industries, where key emphasis is placed on energy production along with sustainable technologies.

Coursework includes an introduction to sustainability as well as trade specific classes in renewable energy. Some courses include testing options for industry recognized certificates.

Graduates should qualify for positions within the renewable energy, construction, or environmental industries. Employment opportunities exist in both the government and private industry sectors where graduates may function as PV panel installers, solar thermal technicians.

Program Length: 2 semesters

Career Pathway Options: Associate in Applied Science in Sustainability Technologies

Program Sites: Pittsboro Campus

Suggested Course Schedule:	HOURS			Grade	Semester	Notes
	Class	Lab	Credit			
1st Semester (Fall)						
ALT 120	Renewable Energy Tech	2	2	3		
ELC 112	DC/AC Electricity	3	6	5		
ALT 220	Photovoltaic Sys Tech	2	3	3		
		7	11	11		
2nd Semester (Spring)						
SST 110	Intro to Sustainability	3	0	3		
ALT 250	Thermal Systems	2	2	3		
		5	2	6		

Total Semester Hours Credit: 17

**Course Descriptions:**

**ALT 120 Renewable Energy Tech 2-2-3**  
This course provides an introduction to multiple technologies that allow for the production and/or conservation of energy from renewable sources. Topics will include hydroelectric, wind power, passive and active solar energy, tidal energy, appropriate building techniques, and energy conservation methods. Upon completion, students should be able to demonstrate an understanding of renewable energy production and its impact of humans and their environment.

**ALT 220 Photovoltaic Sys Tech 2-3-3**  
This course introduces the concepts, tools, techniques, and materials needed to understand systems that convert solar energy into electricity with photovoltaic (pv) technologies. Topics include site analysis for system integration, building codes, and advances in photovoltaic technology. Upon completion, students should be able to demonstrate an understanding of the principles of photovoltaic technology and current applications.

**ALT 250 Thermal Systems 2-2-3**  
This course introduces concepts, tools, techniques, and materials used to convert thermal energy into a viable, renewable energy resource. Topics include forced convection, heat flow and exchange, radiation, the various elements of thermal system design, regulations, and system installation and maintenance. Upon

completion, students should be able to demonstrate an understanding of geothermal and solar thermal systems and corresponding regulations.

**ELC 112 DC/AC Electricity 3-6-5**  
This course introduces the fundamental concepts of and computations related to DC/AC electricity. Emphasis is placed on DC/AC circuits, components, operation of test equipment, and other related topics. Upon completion, students should be able to construct, verify, troubleshoot, and repair DC/AC circuits.

**SST 110 Intro to Sustainability 3-0-3**  
This course introduces sustainability issues and individual contributions toward environmental sustainability. Topics include management processes needed to maximize renewable/nonrenewable energy resources, economics of sustainability, and reduction of environmental impacts. Upon completion, students should be able to discuss sustainability practices and demonstrate an understanding of their effectiveness and impacts.