CENTRAL CAROLINA COMMUNITY COLLEGE

Program Planning Guide
Sustainability Technologies, Renewable Energy Certificate (C40370RE)

Program Length: 2 semesters
Career Pathway Options: Associate in Applied Science in Sustainability Technologies
Program Sites: Chatham Main Campus

Suggested Course Schedule:		HOURS Class	Lab	Credit	Grade	Semester	Notes
1st Semester (Fall)							
ALT 120	Renewable Energy Tech	2	2	3			
ELC 111	Intro to Electricity	2	2	3			
		4	4	6			
2nd Semester (Spring)							
ALT 110	Biofuels I	3	0	3			
ALT 250	Thermal Systems	2	2	3			
ELC 220	Photovoltaic Sys Tech	2	3	3			
SST 130	Modeling Renewable Energy	2	2	3			
		9	7	12			

Total Semester Hours Credit: 18

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.

ELC 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 111 Intro to Electricity 2-2-3
This course introduces the fundamental concepts of electricity and test equipment to non-electrical/electronics majors. Topics include basic DC and AC principles (voltage, resistance, current, impedance); components (resistors, inductors, and capacitors); power; and operation of test equipment. Upon completion, students should be able to construct and analyze simple DC and AC circuits using electrical test equipment.

SST 130 Modeling Renewable Energy 2-2-3
This course introduces software and other technologies used for modeling renewable energy systems. Topics include renewable energy modeling software applications, data analysis, renewable energy sources, and cost of renewable energy systems. Upon completion, students should be able to use appropriate technology to model the effectiveness of renewable energy systems.