CENTRAL CAROLINA COMMUNITY COLLEGE

Program Planning Guide
Electrical Systems Technology, Diploma (D35130C)

Program Length: 4 Semesters
Career Pathway Options: Associate in Applied Science Degree in Electrical Systems Technology; Diploma in Electrical Systems Technology
Program Site/s: Chatham Main Campus

Suggested Course Schedule:

		Hours				
		Class	Lab	Clinical	Credit	Notes:
1st Semester (Fall)						
ELC 112	DC/AC Electricity	3	6	0	5	
ELC 113	Residential Wiring	2	6	0	4	
ELC 118	National Electrical Code	1	2	0	2	
ACA 122	College Transfer Success	0	2	0	1	
					12	
2nd Semester (Spring)						
ELC 114	Commercial Wiring	2	6	0	4	
ELC 117	Motors and Controls	2	6	0	4	
ELC 119	NEC Calculations	1	2	0	2	
ELN 131	Analog Electronics I	3	3	0	4	
					14	
3rd Semester (Summer)						
ELC 127	Software for Technicians	1	3	0	2	
ISC 121	Industrial Safety	3	0	0	3	
					5	
4th Semester (Fall						
ELC 128	Intro to PLC	2	3	0	3	
Social/Behavioral Science Elective					3	
English: Take one course:					3	
ENG 110	Freshman Composition	3	0	0		
ENG 111	Writing and Inquiry	3	0	0		
					9	

Total Semester Hours Credit Required for Graduation: 40

ACA 122 College Transfer Success 0-2-1
This course provides information and strategies necessary to develop clear academic and professional goals beyond the community college experience. Topics include the CAA, college policies and culture, career exploration, gathering information on senior institutions, strategic planning, critical thinking, and communications skills for a successful academic transition. Upon completion, students should be able to develop an academic plan to transition successfully to senior institutions. This course has been approved for transfer under the CAA and ICAA as a premajor and/or elective course requirement.

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, and analyze simple DC/AC circuits.

ELC 113 Residential Wiring 2-6-4
This course introduces the care/usage of tools and materials used in residential electrical installations and the requirements of the National Electrical Code. Topics include NEC, electrical safety, and electrical print reading; planning, layout, and installation of electrical distribution equipment; lighting; overcurrent protection; conductors; branch circuits; and conduits. Upon completion, students should be able to properly install conduits, wiring, and electrical distribution equipment associated with basic electrical installations.

ELC 114 Commercial Wiring 2-6-4
This course provides instruction in the application of electrical tools, materials, and test equipment associated with electrical installations. Topics include the NEC; safety; electrical blueprints; planning, layout, and installation of equipment and conduits; and wiring devices such as panels and overcurrent devices. Upon completion, students should be able to properly install equipment and conduit associated with electrical installations.

ELC 117 Motors and Controls 2-6-4
Local Prerequisites: ELC 112
This course introduces the fundamental concepts of motors and motor controls. Topics include ladder diagrams, pilot devices, contactors, motor starters, motors, and other control devices. Upon completion, students should be able to properly select, connect, and troubleshoot motors and control circuits.

ELC 118 National Electrical Code 1-2-2
This course covers the use of the current National Electrical Code. Topics include the NEC history, wiring methods, overcurrent protection, materials, and other related topics. Upon completion, students should be able to effectively use the NEC.

ELC 119 NEC Calculations 1-2-0-2
This course covers branch circuit, feeder, and service calculations. Emphasis is placed on sections of the National Electrical Code related to calculations. Upon completion, students should be able to use appropriate code sections to size wire, conduit, and overcurrent devices for branch circuits, feeders, and service.

ELC 127 Software for Technicians 1-3-2
This course introduces computer software which can be used to solve electrical/electronics problems. Topics include electrical/electronics calculations and applications. Upon completion, students should be able to utilize a personal computer for electrical/electronics-related applications.

ELC 128 Introduction to PLC 2-3-3
Local Prerequisite: ELC 112 or ELC 131 or Permission of Instructor
This course introduces the programmable logic controller (PLC) and its associated applications. Topics include ladder logic diagrams, input/output modules, power supplies, surge protection, selection/installation of controllers, and interfacing of controllers with equipment. Upon completion, students should be able to install PLC systems and create simple programs.

ENG 110 Freshman Composition 3-0-3
Prerequisites: DRE 097; or appropriate placement test scores
This course is designed to develop informative and business writing skills. Emphasis is placed on logical organization of writing, including effective introductions and conclusions, precise use of grammar, and appropriate selection and use of sources. Upon completion, students should be able to produce clear, concise, well-organized short papers.

ELN 131 Analog Electronics I 3-3-0-4
This course introduces the characteristics and applications of semiconductor devices and circuits. Emphasis is placed on analysis, selection, biasing, and applications. Upon completion, students should be able to construct, analyze, verify, and troubleshoot analog circuits using appropriate techniques and test equipment.

ENG 111 Writing and Inquiry 3-0-3
Prerequisites: DRE 098 or ENG 002
Local Prerequisites: Take one: 1) ENG 011; 2) ENG 002; 3) DRE 098; 4) ENG 090; 5) ENG 095
This course is designed to develop the ability to produce clear writing in a variety of genres and formats using a recursive process. Emphasis includes inquiry, analysis, effective use of rhetorical strategies, thesis development, audience awareness, and revision. Upon completion, students should be able to produce unified, coherent, well-developed essays using standard written English. This course has been approved for transfer under the CAA and ICAA as a universal general education transfer component (UGETC) course in English Composition.

ISC 121 Environmental Health and Safety 3-0-3
This course covers workplace environmental, health, and safety concepts. Emphasis is placed on managing the implementation and enforcement of environmental health and safety regulations and on preventing accidents, injuries, and illnesses. Upon completion, students should be able to demonstrate an understanding of basic concepts of environmental, health, and safety.