

Associate in Applied Science

Electrical Engineering Technology

(A40180)

For more information: Program Chair Dave Ross 704.330.6215 or ET Division: 6704.330.6860



Overview

The Electrical Engineering Technology curriculum is designed to provide training for entry-level technicians desiring a career in electrical maintenance and management, design, planning, construction, development and installation of electrical systems, machines, automation and power generating equipment.

Beginning with electrical fundamentals, coursework progressively introduces electronics, circuit simulation using Electronics Workbench, AutoCAD, and Visual Basic Programming. Other coursework includes the study of various fields associated with the electrical/electronic industry.

In the second year, students have the option to choose one of three tracks: Automation, Electrical Design or Power Systems & Alternative Energy Sources. The tracks are designed to guide students to curriculum paths that cover the appropriate knowledge and skills.

AUTOMATION:

This track focuses on the knowledge and skills associated with the installation, maintenance, integration and troubleshooting of automated systems. Coursework includes control equipment such as PLCs, PACs, networking, electrical machines such as transformers, generators, AC, DC, stepper and servo motors, variable frequency drives, and data acquisition using LabView.

ELECTRICAL DESIGN:

This track focuses on the knowledge and skills associated with electrical system design using computer-aided drafting software packages. Coursework includes 2D and 3D CAD software, networking, electrical machines such as transformers, generators, AC, DC, stepper and servo motors, variable frequency drives, and the generation and distribution of electrical power.

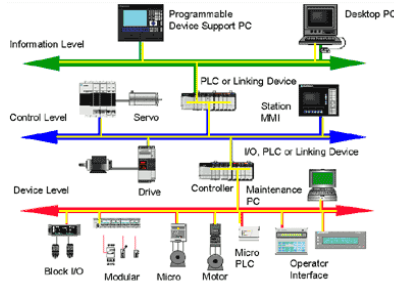
POWER SYSTEMS:

This track focuses on the knowledge and skills associated with the generation, management and distribution of electrical power. Coursework includes control equipment such as PLCs, networking, electrical machines such as transformers, generators, AC, DC, stepper and servo motors, variable frequency drives, and the generation, distribution and management of electrical power.

The AAS degree in Electrical Engineering Technology is accepted at some colleges and universities as the first two years of a 2+2 bachelor's-level engineering technology program. These students are advised to complete a second Physics class (PHY132 or PHY152) to ensure they are not considered deficient with credit hours in Physics.

For additional information, visit www.cpcc.edu/et or call the Program Chair at 704.330.6479

Graduates may seek employment as technicians, engineering assistants, field service engineers, technical managers, or salespersons in electrical generation/distribution, industrial maintenance, automation, electronic repair or other fields requiring a broad-based knowledge of electrical and electronic concepts.



Degree Awarded

The Associate in Applied Science Degree - Electrical Engineering Technology is awarded by the College upon completion of any of the three program tracks.

Diploma Awarded

A diploma in Automation, Electrical Design or Power Systems & Alternative Energy is also awarded by the College upon completion of the respective track.

Note: Students in the Electrical Engineering Technology (A40180) program desiring to earn an additional degree in Computer Engineering Technology (A40160), or Electronics Engineering Technology (A40200), or an additional track under Electrical Engineering Technology (A40180) must meet the specified course requirements.

The Electrical Engineering Technology program is accredited by the Technology Accreditation Commission of ABET, <http://www.abet.org>

Admissions

- A high school diploma or equivalent is required. High school students preparing for an Engineering Technology program should complete courses in algebra, geometry, and advanced mathematics. Skills and proficiencies should be developed in writing, computer literacy, and science.
- CPCC placement tests are required in English and mathematics. Advancement Studies in mathematics and English courses are available for students to build basic skills and knowledge. A counseling/orientation appointment follows placement testing.
- Many courses have prerequisites or corequisites; check the Course Descriptions section for details.

CURRICULUM (First Year—All Tracks) (Effective Fall 2008)

First Semester-Fall		Lecture	Lab	Credit
COM 110	Intro. to Communications	3	0	3
ELC 138	DC Circuit Analysis (8-wk short session)	2	3	3
ELN 150	CAD for Electronics	1	3	2
ENG 111	Expository Writing	3	0	3
MAT 121	Algebra/Trigonometry I	2	2	3
				14
Second Semester-Spring				
ELN 133E	Digital Electronics	3	3	4
ELN 137	Electronic Devices & Circuits	4	3	5
ELC 139	AC Circuit Analysis (8-wk short session)	2	3	3
DFT 151	CAD I (DESIGN TRACK ONLY)	3	0	3
MAT 122	Algebra/Trigonometry II	2	2	3
				18 (14)
Third Semester-Summer				
CSC 139	Visual Basic Programming	2	3	3
ENG 114	Professional Research & Reporting 2 Behavioral/Social Science Elective	3	0	3
	Humanities/Fine Arts Elective	3	0	3
				9 (12)
First Three Semesters Total Credits				41

See back for information on second-year curriculum for:
Automation Track
Electrical Design Track
Power Systems and Alternative Energy Track

**Engineering Technologies
Change your direction!**

FIRST STEP TO ENROLL: CPCC is an Equal Opportunity Institution.

Call CPCC Dave Ross
704.330.6215



CENTRAL PIEDMONT COMMUNITY COLLEGE

CURRICULUM (Second Year) (Effective Fall 2008)**Automation Track**

Fourth Semester-Fall			Lecture	Lab	Credit
ELC 135	Electrical Machines I		2	2	3
ELC 213	Instrumentation		3	2	4
ELN 237	LAN (Ethernet, includes wireless)		2	3	3
ELN 260	Programmable Logic Controllers		3	3	4
PHY 131	Physics (Mechanics)		3	2	4
OR					
PHY 151	College Physics I		3	2	<u>4</u>
					18
Fifth Semester-Spring			Lecture	Lab	Credit
ELC 136	Electrical Machines II		3	3	4
MAT 223	Applied Calculus		2	2	3
PCI 170	DAQ & Control (LabView)		3	3	4
PCI 173	Programmable Systems (Adv. PLCs, PACs, network-based, HMI)		3	3	4
					<u>-</u>
					15
 TOTAL CREDITS					74

CURRICULUM (Second Year) (Effective Fall 2008)**Electrical Design**

Fourth Semester-Fall			Lecture	Lab	Credit
ELC 135	Electrical Machines I		2	2	3
ELN 237	LAN (Ethernet, includes wireless)		2	3	3
DFT 152	CAD II		2	3	3
ELC 213	Instrumentation		3	2	4
PHY 131	Physics (Mechanics)		3	2	4
OR					
PHY 151	College Physics I		3	2	<u>4</u>
					17
Fifth Semester-Spring			Lecture	Lab	Credit
ELC 136	Electrical Machines II		3	3	4
ELC 231	Electric Power Systems		3	2	4
ELC 234E	Electrical System Design		2	3	3
MAT 223	Applied Calculus		2	2	3
DFT 153	CAD III		3	3	4
					<u>-</u>
					17
 TOTAL CREDITS					75

CURRICULUM (Second Year) (Effective Fall 2008)**Power Systems and Alternative Energy**

Fourth Semester-Fall			Lecture	Lab	Credit
ELC 135	Electrical Machines I		2	2	3
ELN 237	LAN (Ethernet, includes wireless)		2	3	3
ELN 260	Programmable Logic Controllers		3	3	4
MAT 223	Applied Calculus		2	2	3
PHY 131	Physics (Mechanics)		3	2	4
OR					
PHY 151	College Physics I		3	2	<u>4</u>
					17
Fifth Semester-Spring			Lecture	Lab	Credit
ELC 136	Electrical Machines II		3	3	4
ELC 231	Electric Power Systems		3	2	4
ELC 233	Energy Management		2	2	3
ELN 275	Troubleshooting		1	2	2
PCI 173	Programmable Systems (Adv. PLCs, PACs, network-based, HMI)		3	3	4
					<u>-</u>
					17
 TOTAL CREDITS					75