Engineering Technologies

Computer Engineering Technology
Credential: Associate in Applied Science Degree in Computer Engineering Technology
A40160

The Computer Engineering Technology curriculum provides the skills required to install, service, and maintain computers, peripherals, networks, and microprocessor and computer controlled equipment. It includes training in both hardware and software, emphasizing operating systems concepts to provide a unified view of computer systems.

Coursework includes mathematics, physics, electronics, digital circuits, and programming with emphasis on the operation, use, and interfacing of memory and devices to the CPU. Additional topics may include communications, networks, operating systems, programming languages, Internet configuration and design, and industrial applications.

Graduates will qualify for employment opportunities in electronics technology, computer service, computer networks, server maintenance, programming, and other areas requiring a knowledge of electronic and computer systems. Graduates will also qualify for certification in electronics, computers, or networks.

Program Length: 5 semesters
Career Pathway Options: Associate of Applied Science Degree in Computer Engineering Technology
Program Sites: Lee Campus - Day

Course Requirements for Computer Engineering Technology Degree

I. General Education Academic Core (15 SHC)		C-L-SHC
ENG 111	Writing and Inquiry	3-0-3
ENG 114	Professional Research and Reporting	3-0-3
MAT 121	Algebra/Trigonometry I	2-2-3
	Humanities/Fine Arts Elective	3-0-3
	Social/Behavioral Science Elective	3-0-3

II. Major Hours (59 SHC)
A. Technical Core (12 SHC)

ELC 131	Circuit Analysis I	3-3-4
ELN 131	Analog Electronics I	3-3-4
ELN 133	Digital Electronics	3-3-4

B. Program Major (13 SHC)

CET 111	Computer Upgrade/Repair I	2-3-3
ELN 232	Introduction to Microprocessors	3-3-4
NOS 110	Operating Systems Concepts	2-3-3
	*Programming Elective	3

C. Other Major Hours Required (34 SHC)

CET 211	Computer Upgrade/Repair II	2-3-3
CET 225	Digital Signal Processing	2-2-3
CIS 110	Introduction to Computers	2-2-3
EGR 131	Intro to Electronics Tech	1-2-2
ELC 131A	Circuit Analysis I Lab	0-3-1
ELN 132	Analog Electronics II	3-3-4
ELN 275	Troubleshooting	1-2-2
MAT 122	Algebra/Trigonometry	2-2-3
NET 110	Networking Concepts	2-2-3
PCI 170	DAQ and Control	3-3-4
PHY 131	Physics: Mechanics	3-2-4
	** Technical Electives	2

III. Other Required Hours (1 SHC)
Choose one course:

ACA 111	College Student Success	1-0-1
ACA 115	Success and Study Skills	0-2-1
ACA 122	College Transfer Success	1-0-1

Total Semester Hours Credit Required for Graduation: 75

*Programming Electives (choose 3 SHC)

CSC 134	C++ Programming	2-3-3
CSC 139	Visual BASIC Programming	2-3-3
CSC 151	JAVA Programming	2-3-3

**Technical Electives: (Select 2 SHC)

CSC 134	C++ Programming	2-3-3
CSC 139	Visual BASIC Programming	2-3-3
CSC 151	JAVA Programming	2-3-3
ELN 234	Communication Systems	3-3-4
ELN 247	Electronics Application Project	1-3-2
NET 125	Networking Basics	1-4-3
NET 126	Routing Basics	1-4-3
NOS 120	Linux/UNIX Single User	2-2-3
NOS 130	Windows Single User	2-2-3

Electronics Engineering Technology
Credential: Associate in Applied Science Degree in Electronics Engineering Technology
A40200

This curriculum prepares individuals to become technicians who design, build, install, test, troubleshoot, repair, and modify developmental and production electronic components, equipment, and systems such as industrial/computer controls, manufacturing systems, telecommunication systems, and power electronic systems.

A broad-based core of courses, including basic electricity, solid-state fundamentals, digital concepts and microprocessors ensures the student will master the competencies necessary to perform entry-level tasks. Emphasis is placed on developing the student's ability to think, analyze, and troubleshoot.

Graduates will qualify for employment as engineering assistants or electronic technicians with job titles including electronic engineering associate, electronic engineering technician, field service technician, maintenance technician, electronic tester, electronic systems integrator, bench technician, and production control technician.

Program Length: 5 semesters
Career Pathway Options: Associate in Applied Science
Degree in Electronics Engineering Technology
Program Sites: Lee Campus - Day Program

Course Requirements for Electronics Engineering
Technology Degree

I. General Education Academic Core (15 SHC)   C-L-SHC

ENG 111	Writing and Inquiry	3-0-3
ENG 114	Professional Research and Reporting	3-0-3
MAT 121	Algebra/Trigonometry I	2-2-3
	Humanities/Fine Arts Elective	3-0-3
	Social/Behavioral Science Elective	3-0-3

II. Major Hours (58 SHC)
A. Technical Core (12 SHC)

ELC 131	Circuit Analysis I	3-3-4
ELN 131	Analog Electronics I	3-3-4
ELN 133	Digital Electronics	3-3-4

B. Program Major (12 SHC)

ELN 132	Analog Electronics II	3-3-4
ELN 232	Introduction to Microprocessors	3-3-4
ELN 234	Communication Systems	3-3-4

C. Other Major Hours (34 SHC)

CET 225	Digital Signal Processing	2-2-3
CIS 110	Introduction to Computers	2-2-3
EGR 131	Introduction to Electronics Tech.	1-2-2
ELC 131A	Circuit Analysis I Lab	0-3-1
ELN 247	Electronic Applications Project	1-3-2
ELN 275	Troubleshooting	1-3-2
ISC 221	Statistical Quality Control	3-0-3
MAT 122	Algebra/Trigonometry II	2-2-3
PCI 170	DAQ and Control	3-3-4
PHY 131	Physics - Mechanics	3-2-4
PHY 133	Physics-Sound and Light	3-2-4
	Major Elective	3

III. Other Required Hours (1 SHC)
Choose one course:

ACA 111	College Student Success	1-0-1
ACA 115	Success and Study Skills	0-2-1
ACA 122	College Transfer Success	1-0-1

Major Elective Course Listing (Select 3 SHC)

CET 111	Computer Upgrade/Repair I	2-3-3
CSC 134	C++ Programming	2-3-3
CSC 151	JAVA Programming	2-3-3
DFT 151	CAD I	2-3-3
ELC 128	Introduction to PLCs	2-3-3
ELC 213	Instrumentation	3-2-4
ELN 236	Fiber Optics and Lasers	3-2-4
NET 110	Networking Concepts	2-2-3
NOS 110	Operating Systems Concepts	2-3-3

Total Semester Hours Credit Required for Graduation: 74

Electronics Engineering Technology
Credential: Certificate in Electronics Technology
C40200

This curriculum prepares individuals to work as skilled assemblers, inspectors, or testers in consumer or industrial electronics environments. Work tasks include mounting, soldering, and wiring of electronics components, assembling sub-units, and final assembly and inspection of complete systems. Coursework includes basic electricity, mathematics, solid-state electronics, and basic assembly skills. Graduates should qualify for employment as an electronics assembler, electronics tester, or electronics inspector.

Program Length: 3 semesters
Career Pathway Options: Associate in Applied Science
Degree in Electronics Engineering Technology , Certificate in Electronics Technology
Program Sites:
Lee Campus - Day Program
Harnett Campus – Day Program

Course Requirements for Electronics Technology Certificate

I. General Education Academic Core (3 SHC)   C-L-SHC

MAT 121	Algebra/Trigonometry I	2-2-3

II. Major Hours (15 SHC)
A. Technical Core (8 SHC)

ELC 131	Circuit Analysis I	3-3-4
ELN 131	Analog Electronics I	3-3-4

B. Program Major (4 SHC)

ELN 132	Analog Electronics II	3-3-4

C. Other Major Hours Required for Graduation (3 SHC)

EGR 131	Introduction To Electronics Technology	1-2-2
ELC 131A	Circuit Analysis I Lab	0-3-1

Total Semester Hours Credit Required for Graduation: 18

Laser and Photonics Technology
Credential: Associate in Applied Science Degree in Laser and Photonics Technology
A40280

The Laser and Photonics Technology curriculum is designed to develop the practical knowledge and skills required to be a successful technician in business and industry. Coursework includes mathematics, science, communication, electronics and optics courses. An in-depth sequence of laboratory learning experiences develops the hands-on skills needed for specifying, operating and maintaining laser and photonics-based systems.

Current and emerging job opportunities exist in the areas of fiber optic communications, materials processing, laser surgery, research and a variety of related areas. Program graduates often begin work as technicians in product testing, field service, product development or sales.

Program Length: 5 semesters
Career Pathway Options: Associate in Applied Science in Laser and Photonics Technology
Program Sites: Harnett Campus - Day Program

Course Requirements for Laser and Photonics Technology Degree

I. General Education Academic Core (15 SHC)

		C-L-SHC
ENG 111	Writing and Inquiry	3-0-3
ENG 114	Professional Research and Reporting	3-0-3
MAT 121	Algebra/Trigonometry I	2-2-3
	Humanities/Fine Arts Elective	3-0-3
	Social/Behavioral Science Elective	3-0-3

II. Major Hours (59 SHC)

A. Core (12 SHC)

ELC 131	Circuit Analysis I	3-3-4
ELN 131	Analog Electronics I	3-3-4
ELN 133	Digital Electronics	3-3-4

B. Program Major (13 SHC)

LEO 111	Lasers and Applications	1-3-2
LEO 211	Photonics Technology	5-6-7
LEO 212	Photonics Applications	3-3-4

C. Other Major Hours Required for Graduation (34 SHC)

CIS 110	Introduction to Computers	2-2-3
EGR 131	Introduction to Electronics Tech.	1-2-2
ELC 127	Software for Technicians	1-3-2
ELC 131A	Circuit Analysis I Lab	0-3-1
ELN 132	Analog Electronics II	3-3-4
ELN 232	Intro to Microprocessors	3-3-4
ELN 275	Troubleshooting	1-3-2
ISC 221	Statistical Quality Control	3-0-3
LEO 213	Advanced Photonics Applications	3-3-4
MAT 122	Algebra/Trigonometry II	2-2-3
PHY 131	Physics - Mechanics	3-2-4
	Technical Elective	2

III. Other Required Hours (1 SHC)

Choose one course:

ACA 111	College Student Success	1-0-1
ACA 115	Success and Study Skills	0-2-1
ACA 122	College Transfer Success	1-0-1

Technical Electives

WBL 111	Work-Based Learning I	0-10-1
WBL 121	Work-Based Learning II	0-10-1
WBL 122	Work-Based Learning II	0-20-2
LEO 222	Photonics Applications Project	1-3-2

Total Semester Hours Required for Graduation: 75

Sustainability Technologies
Credential: Associate in Applied Science Degree in Sustainability Technologies
A40370

The Sustainability Technologies curriculum is designed to prepare individuals for employment in environmental, construction, alternative energy, manufacturing, or related industries, where key emphasis is placed on energy production and waste reduction along with sustainable technologies.

Course work may include alternative energy, environmental engineering technology, sustainable manufacturing and green building technology. Additional topics may include sustainability, energy management, waste reduction, renewable energy, site assessment, and environmental responsibility.

Graduates should qualify for positions within the alternative energy, construction, environmental, and/or manufacturing industries. Employment opportunities exist in both the government and private industry sectors where graduates may function as manufacturing technicians, sustainability consultants, environmental technicians, or green building supervisors.

Program Length: 4 semesters
Career Pathway Options: Associate in Applied Science in Sustainability Technologies
Program sites: Pittsboro Campus

Course Requirements for Sustainability Technologies Degree

A. General Education Courses (15 SHC)

		C-L-SHC
ENG 111	Writing and Inquiry	3-0-3
*ENG 114	Professional Research and Reporting	3-0-3
	Humanities/Fine Arts Elective	3-0-3
**MAT 121	Algebra/Trigonometry I	2-2-3
	Social/Behavioral Science Elective	3-0-3

*Students may substitute ENG 113.
**Students may substitute MAT 171

B. Required Major Core Courses (12 SHC)

BIO 140	Environmental Biology	3-0-3
BIO 140A	Environmental Biology Lab	0-3-1
	-or-	
ENV 110	Environmental Science	3-0-3
SST 110	Intro to Sustainability	3-0-3
SST 120	Energy Use Analysis	2-2-3
SST 210	Issues in Sustainability	3-0-3