

**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****A. General Education (16 SHC)**

ENG 111	Expository Writing	3-0-3
ENG 111A	Expository Writing Lab	0-2-1
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

**B. Required Major Core Courses (19 SHC)**

CET 111	Computer Upgrade/Repair I	2-3-3
ELC 131	DC/AC Circuit Analysis	4-3-5
ELN 131	Electronic Devices	3-3-4
ELN 133	Digital Electronics	3-3-4
	*Programming Elective	3

**C. Other Major Hours Required for Graduation (40 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
ELN 132	Linear IC Applications	3-3-4
ELN 232	Introduction to Microprocessors	3-3-4
ELN 275	Troubleshooting	1-2-2

MAT 122	Algebra/Trigonometry	2-2-3
NET 110	Networking Concepts	2-2-3
NOS 110	Operating Systems Concepts	2-2-3
PCI 170	DAQ and Control	3-3-4
PHY 131	Physics: Mechanics	3-2-4
	** Technical Electives	2

**\*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

Total Semester Hours Credit in Program: 75

**Semester Curriculum for Computer Engineering Technology Degree**

1st Semester (Fall)		C-L-SHC
CIS 110	Introduction to Computers	2-2-3
EGR 131	Intro to Electronics Tech	1-2-2
ELC 131	DC/AC Circuit Analysis	4-3-5
ENG 111	Expository Writing	3-0-3
ENG 111A	Expository Writing Lab	0-2-1
MAT 121	Algebra/Trigonometry I	2-2-3
		12-11-17

**2nd Semester (Spring)**

ELN 131	Electronic Devices	3-3-4
ELN 133	Digital Electronics	3-3-4
MAT 122	Algebra/Trigonometry II	2-2-3
NOS 110	Operating Systems Concepts	2-2-3
PHY 131	Physics-Mechanics	3-2-4
		13-12-18

**3rd Semester (Summer)**

ELN 132	Linear IC Applications	3-3-4
ENG 114	Prof. Research and Reporting	3-0-3
		6-3-7

**4th Semester (Fall)**

CET 111	Computer Upgrade/Repair I	2-3-3
CET 225	Digital Signal Processing	2-2-3
ELN 232	Introduction to Microprocessors	3-3-4
	Social Science Elective	3-0-3
	Programming Elective	2-3-3
		12-11-16

**5th Semester (Spring)**

CET 211	Computer Upgrade/Repair II	2-3-3
ELN 275	Troubleshooting	1-2-2
	Humanities/Fine Arts Elective	3-0-3
NET 110	Networking Concepts	2-2-3
PCI 170	DAQ and Control	3-3-4

Technical Elective 2  
11-10-17

Total Semester Hours Credit: 75

**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**

<b>A. General Education Courses (16 SHC)</b>			<b>C-L-SHC</b>
ENG 111	Expository Writing		3-0-3
ENG 111A	Expository Writing Lab		0-2-1
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

**B. Required Major Core Courses (17 SHC)**

ELC 131	DC/AC Circuit Analysis		4-3-5
ELN 131	Electronic Devices		3-3-4
ELN 133	Digital Electronics		3-3-4
ELN 232	Introduction to Microprocessors		3-3-4

**C. Other Major Hours Required for Graduation (43 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 127	Software for Technicians		1-2-2
ELN 132	Linear IC Applications		3-3-4
ELN 234	Communication Systems		3-3-4
ELN 247	Electronic Applications Project		1-3-2
ELN 275	Troubleshooting		1-2-2
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

## 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 Programmable Logic Controllers	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	2-2-3

Total Semester Hours Credit Required for Graduation: 76

## Semester Curriculum for Electronics Engineering Technology Degree

1st Semester (Fall)		C-L-SHC
CIS 110	Introduction to Computers	2-2-3
EGR 131	Introduction to Electronics Tech.	1-2-2
ELC 131	DC/AC Circuit Analysis	4-3-5
ENG 111	Expository Writing	3-0-3
ENG 111A	Expository Writing Lab	0-2-1
MAT 121	Algebra/Trigonometry I	2-2-3
		12-11-17

## 2nd Semester (Spring)

ELC 127	Software for Technicians	1-2-2
ELN 131	Electronic Devices	3-3-4
ELN 133	Digital Electronics	3-3-4
MAT 122	Algebra/Trigonometry II	2-2-3
PHY 131	Physics - Mechanics	3-2-4
		12-12-17

## 3rd Semester (Summer)

ELN 132	Linear IC Applications	3-3-4
PHY 133	Physics-Sound and Light	3-2-4
		6-5-8

## 4th Semester (Fall)

CET 225	Digital Signal Processing	2-2-3
ELN 232	Introduction to Microprocessors	3-3-4
ELN 234	Communication Systems	3-3-4
ENG 114	Professional Research and Reporting	3-0-3
	Social/Behavioral Science Elective	3-0-3
		14-8-17

## 5th Semester (Spring)

ELN 247	Electronic Applications Project	1-3-2
ELN 275	Troubleshooting	1-2-2
ISC 221	Statistical Quality Control	3-0-3
PCI 170	DAQ and Control	3-3-4
	Humanities/Fine Arts Elective	3-0-3
	Major Elective	3
		11-8-17

Total Semester Hours Credit: 76

## 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

Online Program

## Course Requirements for Electronics Technology Certificate

A. General Education Courses (3 SHC)		C-L-SHC
MAT 121	Algebra/Trigonometry I	2-2-3

## B. Required Major Core Courses (13 SHC)

ELC 131	DC/AC Circuit Analysis	4-3-5
ELN 131	Electronic Devices	3-3-4
ELN 132	Linear IC Applications	3-3-4

## C. Other Major Hours Required for Graduation (2 SHC)

EGR 131	Introduction To Electronics Technology	1-2-2
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Total Semester Hours Credit Required for Graduation: 18

## Semester Curriculum for Electronics Technology Certificate

1st Semester (Fall)		C-L-SHC
EGR 131	Introduction to Electronics Technology	1-2-2
ELC 131	DC/AC Circuit Analysis	4-3-5
MAT 121	Algebra/Trigonometry I	2-2-3
		7-7-10

## 2nd Semester (Spring)

ELN 131	Electronic Devices	3-3-4
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## 3rd Semester (Summer)

ELN 132	Linear IC Applications	3-3-4
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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

A. General Education Courses (16 SHC)		C-L-SHC
ENG 111	Expository Writing	3-0-3
ENG 111A	Expository Writing Lab	0-2-1
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

#### B. Required Major Core Courses (34 SHC)

ELC 131	DC/AC Circuit Analysis	4-3-5
ELN 131	Electronic Devices	3-3-4
ELN 132	Linear IC Applications	3-3-4
ELN 133	Digital Electronics	3-3-4
LEO 111	Principles of Lasers	1-3-2
LEO 211	Photonics Technology	5-6-7
LEO 212	Photonics Applications	3-3-4
LEO 223	Fiber Optics	3-3-4

#### C. Other Major Hours Required for Graduation (24/25 SHC)

CIS 111	Basic PC Literacy	1-2-2
	OR	
CIS 110	Introduction to Computers	2-2-3
EGR 131	Introduction to Electronics Technology	1-2-2
ELC 127	Software for Technicians	1-2-2
ELN 275	Troubleshooting	1-2-2
ISC 221	Statistical Quality Control	3-0-3
LEO 221	PC Interface	3-3-4
LEO 222	Photonics Applications Project	1-3-2
MAT 122	Algebra/Trigonometry II	2-2-3

PHY 131 Physics - Mechanics 3-2-4

Total Semester Hours Credit Required for Graduation: 74/75

#### Semester Curriculum for Laser and Photonics Technology Degree

1st Semester (Fall) C-L-SHC

CIS 111	Basic PC Literacy	1-2-2
	OR	
CIS 110	Introduction to Computers	2-2-3
EGR 131	Introduction to Electronics Technology	1-2-2
ELC 131	DC/AC Circuit Analysis	4-3-5
ENG 111	Expository Writing	3-0-3
ENG 111A	Expository Writing Lab	0-2-1
MAT 121	Algebra/Trigonometry I	2-2-3

11/12-11-16/17

#### 2nd Semester (Spring)

ELC 127	Software for Technicians	1-2-2
ELN 131	Electronic Devices	3-3-4
ELN 133	Digital Electronics	3-3-4
LEO 111	Principles of Lasers	1-3-2
MAT 122	Algebra/Trigonometry II	2-2-3

10-13-15

#### 3rd Semester (Summer)

ELN 132	Linear IC Applications	3-3-4
PHY 131	Physics - Mechanics	3-2-4
		6-5-8

#### 4th Semester (Fall )

ELN 275	Troubleshooting	1-2-2
ENG 114	Professional Research and Reporting	3-0-3
LEO 211	Photonics Technology	5-6-7
LEO 212	Photonics Applications	3-3-4
	Humanities/Fine Arts Elective	3-0-3

15-11-19

#### 5th Semester (Spring )

ISC 221	Statistical Quality Control	3-0-3
LEO 221	PC Interface	3-3-4
LEO 222	Photonics Applications Project	1-3-2
LEO 223	Fiber Optics	3-3-4
	Social/Behavioral Science Elective	3-0-3

13-9-16

Total Semester Hours Credit: 74/75

## Mechanical Engineering Technology

### Credential: Associate in Applied Science

### Degree in Mechanical Engineering Technology

### A40320

The Mechanical Engineering Technology curriculum prepares graduates for employment as technicians in the diversified mechanical and manufacturing engineering fields. Mechanical Engineering technicians assist in design, development, testing, process design and improvement, and troubleshooting and repair of engineered systems. Emphasis is placed on the integration of theory and hands-on application of engineering principles.

In addition to coursework in engineering graphics, engineering fundamentals, materials and manufacturing processes, mathematics, and physics, students will study computer applications, critical thinking, planning and problem solving, and oral and written communication.

Graduates of the curriculum will find employment opportunities in the manufacturing or service sectors of engineering technology. Engineering technicians may obtain professional certification by application to organizations such as American Society for Quality Control (ASQC), Society of Manufacturing Engineers (SME), and National Institute for Certification in Engineering Technology (NICET).

Program Length: 6 semesters

Career Pathway Options: Associate in Applied Science in Mechanical Engineering Technology

Program Sites:

Lee Campus - Day Program

#### Course Requirements for Mechanical Engineering Technology

A. General Education Courses (16 SHC)		C-L-SHC
ENG 111	Expository Writing	3-0-3
ENG 111A	Expository Writing Lab	0-2-1
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

#### B. Required Major Core Courses (24 SHC)

Required Subject Area		
*CIS 110	Introduction to Computers	2-2-3
DDF 211	Design Process I	1-6-4
DFT 151	CAD I	2-3-3
DFT 152	CAD II	2-3-3
MEC 161	Manufacturing Processes I	3-0-3
MEC 231	CAM I	1-4-3
MEC 250	Statics and Strength of Mat.	4-3-5

#### C. Other Major Hours Required for Graduation (27 SHC)

DFT 111	Technical Drafting I	1-3-2
DFT 154	Introduction to Solid Modeling	2-3-3

MAC 121	Introduction to CNC	2-0-2
MAT 122	Algebra/Trigonometry II	2-2-3
MEC 110	Introduction to CAD/CAM	1-2-2
MEC 130	Mechanisms	2-2-3
MEC 161A	Manufacturing Proc I Lab	0-3-1
PHY 131	Physics-Mechanics	3-2-4
PHY 133	Physics-Sound and Light	3-2-4
	Major Elective	3

#### Major Elective Course Listing (Select 3 SHC)

DFT 153	CAD III	2-3-3
DFT 254	Intermed Solid Model/Rend	2-3-3
MEC 232	CAM II	1-4-3

Total Semester Hours Credit required for graduation: 67

\*Student may substitute CIS 111

#### Semester Curriculum for Mechanical Engineering Technology Degree

1st Semester (Fall)		C-L-SHC
*CIS 110	Introduction to Computers	2-2-3
DFT 111	Technical Drafting I	1-3-2
ENG 111	Expository Writing	3-0-3
ENG 111A	Expository Writing Lab	0-2-1
MAC 121	Introduction to CNC	2-0-2
MEC 110	Introduction to CAD/CAM	1-2-2
MAT 121	Algebra/Trigonometry I	2-2-3
		11-11-16

2nd Semester (Spring)		
DFT 151	CAD I	2-3-3
PHY 131	Physics-Mechanics	3-2-4
MAT 122	Algebra/Trigonometry II	2-2-3
ENG 114	Professional Research and Reporting	3-0-3
MEC 161	Manufacturing Processes I	3-0-3
MEC 161A	Manufacturing Proc I Lab	0-3-1
		13-10-17

3rd Semester (Summer)		
PHY 133	Physics- Sound and Light	3-2-4
		3-2-4

4th Semester (Fall)		
DFT 152	CAD II	2-3-3
MEC 231	CAM I	1-4-3
MEC 130	Mechanisms	2-2-3
	Social/Behavioral Science Elective	3-0-3
	Humanities/Fine Arts elective	3-0-3
		11-9-15

5th Semester (Spring)		
DDF 211	Design Process I	1-6-4
DFT 154	Introduction to Solid Modeling	2-3-3
	Major Elective	3
MEC 250	Statics and Strength of Mat.	4-3-5
		7-9-15

Total Semester Hours Credit Required for Graduation: 67

\*Student may substitute CIS 111

## Mechanical Engineering Technology Credential: Diploma in Mechanical Engineering Technology D40320

The Mechanical Engineering Technology curriculum prepares graduates for employment as technicians in the diversified mechanical and manufacturing engineering fields. Mechanical Engineering technicians assist in design, development, testing, process design and improvement, and troubleshooting and repair of engineered systems. Emphasis is placed on the integration of theory and hands-on application of engineering principles. In addition to coursework in engineering graphics, engineering fundamentals, materials and manufacturing processes, mathematics, and physics, students will study computer applications, critical thinking, planning and problem solving, and oral and written communication.

Graduates of the curriculum should find employment opportunities in the manufacturing or service sectors of engineering technology. Engineering technicians may obtain professional certification by application to organizations such as American Society for Quality Control (ASQC), Society of Manufacturing Engineers (SME), and National Institute for Certification in Engineering Technology (NICET).

Program Length: 3 semesters

Career Pathway Options: Associate in Applied Science in Mechanical Engineering Technology, Diploma in Mechanical Engineering Technology

Program Sites:

Lee Campus - Day Program

### Course Requirements for Mechanical Engineering Technology Diploma

A. General Education Courses (7 SHC)	C-L-SHC
ENG 111 Expository Writing	3-0-3
ENG 111A Expository Writing Lab	0-2-1
MAT 121 Algebra/Trigonometry I	2-2-3

### B. Required Major Core Courses (16 SHC)

DDF 211 Design Process I	1-6-4
DFT 151 CAD I	2-3-3
DFT 152 CAD II	2-3-3
MEC 161 Manufacturing Processes I	3-0-3
MEC 231 CAM I	1-4-3

### C. Other Major Hours Required for Graduation (16 SHC)

*CIS 110 Introduction to Computers	2-2-3
DFT 111 Technical Drafting I	1-3-2
MAC 121 Introduction to CNC	2-0-2
MEC 110 Introduction to CAD/CAM	1-2-2
MEC 232 CAM II	1-4-3
MEC 161A Manufacturing Proc I Lab	0-3-1
DFT 154 Introduction to Solid Modeling	2-3-3

Total Semester Hours Credit required for graduation: 39

\*Student may substitute CIS 111

### Semester Curriculum for Mechanical Engineering Technology Diploma

1st Semester (Fall)	C-L-SHC
*CIS 110 Introduction to Computers	2-2-3
DFT 111 Technical Drafting I	1-3-2
MAC 121 Introduction to CNC	2-0-2
MEC 110 Introduction to CAD/CAM	1-2-2
MAT 121 Algebra/Trigonometry I	2-2-3
	8-9-12
2nd Semester (Spring)	
DFT 151 CAD I	2-3-3
MEC 161 Manufacturing Processes I	3-0-3
MEC 161A Manufacturing Proc I Lab	0-3-1
	5-6-7
3rd Semester (Summer)	
DFT 152 CAD II	2-3-3
ENG 111 Expository Writing	3-0-3
ENG 111A Expository Writing Lab	0-2-1
MEC 231 CAM I	1-4-3
	6-9-10
4 <sup>th</sup> Semester (Spring)	
DDF 211 Design Process I	1-6-4
DFT 154 Introduction to Solid Modeling	2-3-3
MEC 232 CAM II	1-4-3
	4-13-10

Total Semester Hours Credit required for graduation: 39

\*Student may substitute CIS 111

## Mechanical Engineering Technology

### Credential: Certificate in Computer Aided Drafting C4032001

The rapidly developing age of high technology has brought about a need for people in the fields of architecture, land surveying, manufacturing, drafting, maintenance, engineering and design to update their computer graphics skills.

This certificate is intended for persons with some drafting experience who wish to attend class at night. (Enrollment is by approval of advisor.)

Program Length: 2 semesters

Career Pathway Options: Associate in Applied Science in Mechanical Engineering Technology (Higher entrance standards required); Diploma in Mechanical Engineering Technology; Certificate in Computer Aided Drafting, Certificate in Computer Aided Manufacturing

Program Sites: Lee Campus - Evening Program

#### Course Requirements for Computer Aided Drafting Certificate

A. Required Major Core Courses (9 SHC)		C-L-SHC
DFT 151	CAD I	2-3-3
DFT 152	CAD II	2-3-3
DFT 154	Introduction to Solid Modeling	2-3-3

#### B. Other Major Hours Required for Graduation (3 SHC)

DFT 153	CAD III	2-3-3
	OR	
DFT 254	Intermed Solid Model/Rend	2-3-3

Total Semester Hours Credit required for graduation: 12

#### Semester Curriculum for Computer Aided Drafting Certificate

1st Semester (Fall)		C-L-SHC
DFT 151	CAD I	2-3-3
		2-3-3
2nd Semester (Spring)		
DFT 152	CAD II	2-3-3
DFT 154	Introduction to Solid Modeling	2-3-3
		4-6-6
3 <sup>rd</sup> Semester (Fall)		
DFT 153	CAD III	2-3-3
	OR	
DFT 254	Intermed Solid Model/Rend	2-3-3
		2-3-3

Total Semester Hours Credit: 12

## Mechanical Engineering Technology

### Credential: Certificate in Computer Aided Manufacturing C4032002

The rapidly developing age of high technology has brought about a need for people in the fields of manufacturing, CNC programming, tool and mold making, and engineering and design to develop skills in interfacing CAD/CAM with CNC equipment.

This certificate is intended for persons with some manufacturing experience who wish to attend class at night. (Enrollment is by approval of advisor.)

Program Length: 2 semesters

Career Pathway Options: Associate in Applied Science in Mechanical Engineering Technology (Higher entrance standards required); Diploma in Mechanical Engineering Technology; Certificate in Computer Aided Drafting, Certificate in Computer Aided Manufacturing

Program Sites: Lee Campus - Evening Program

#### Course Requirements for Computer Aided Manufacturing Certificate

A. Required Major Core Courses (9 SHC)		C-L-SHC
DFT 151	CAD I	2-3-3
DFT 152	CAD II	2-3-3
MEC 231	CAM I	1-4-3

#### B. Other Major Hours Required for Graduation (5 SHC)

MEC 232	CAM II	1-4-3
MEC 110	Introduction to CAD/CAM	1-2-2

Total Semester Hours Credit required for graduation: 12

#### Semester Curriculum for Computer Aided Manufacturing Certificate

1st Semester (Fall)		C-L-SHC
DFT 151	CAD I	2-3-3
MEC 110	Introduction to CAD/CAM	1-2-2
		3-5-5
2nd Semester (Spring)		
MEC 231	CAM I	1-4-3
DFT 152	CAD II	2-3-3
		3-7-6
3 <sup>rd</sup> Semester (Fall)		
MEC 232	CAM II	1-4-3
		1-4-3

Total Semester Hours Credit: 14

## Sustainability Technologies Credential: Associate in Applied Science 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 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, and environmental industries. Employment opportunities exist in both the government and private industry sectors where graduates may function as renewable energy technicians, sustainability consultants, environmental technicians, or green building supervisors.

Program Length: 5 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 (16 SHC)		C-L-SHC
ENG 111	Expository Writing	3-0-3
ENG 111A	Expository Writing Lab	0-2-1
*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 161

### B. Required Major Core Courses (12 SHC)

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

### Select One Subject Area:

#### Alternative Energy: (9 SHC)

ALT 120	Renewable Energy Tech	2-2-3
ALT 220	Photovoltaic Sys Tech	2-3-3
	Or	
ALT 240	Wind and Hydro Power Systems	2-2-3
SST 130	Modeling Renewable Energy	2-2-3

### Green Building: (12 SHC)

ARC 111	Intro to Arch Technology	1-6-3
CMT 210	Prof. Construction Supervision	3-0-3
ARC 210	Intro to Sustain Design	1-3-2
	Or	
SST 140	Green Building Concepts	1-3-2
SRV 110	Surveying I	2-6-4
	Or	
SRV 112	Landscape Arch Surveying	2-6-4

### C. Other Major Hours Required (31/33 SHC)

#### For both Green Building and Alternative Energy Tracks (15 SHC)

CIS 110	Introduction to computers	2-2-3
CMT 224	Statics in Construction	2-2-3
ELC 113	Basic Wiring	2-6-4
MEC 110	Intro to CAD / CAM	1-2-2
SST 250	Sustain Capstone Project	3-0-3

#### Courses for Alternative Energy Track (Minimum 16 hours)

ALT 110	Biofuels I	3-0-3
ALT 210	Biofuels II	3-2-4
ALT 211	Biofuels Analytics	2-4-4
ALT 221	Adv PV Sys Designs	2-3-3
ALT 250	Thermal Systems	2-2-3
BPR 115	Elc/Fluid Power Diagrams	1-2-2
ELC 112	DC/AC Electricity	3-6-5
MNT 230	Pumps and Piping Systems	1-3-2

#### Courses for Green Building Track (16 SHC):

ALT 120	Renewable Energy Tech	2-2-3
BPR 130	Blueprint Reading-Construction	2-0-2
CMT 214	Planning and Scheduling	3-0-3
CST 111	Construction I	3-3-4
CST 112	Construction II	3-3-4

Total Semester Hours Credit Required for Graduation:  
70/71

### Semester Curriculum for Sustainability Technologies Degree

#### Alternative Energy Tract (70 SHC):

1st Semester (Fall)		
ENG 111	Expository Writing	3-0-3
ENG 111A	Expository Writing Lab	0-2-1
SST 110	Intro to Sustainability	3-0-3
ALT 120	Renewable Energy Tech	2-2-3
ALT 220	Photovoltaic Sys Tech	2-3-3
ELC 112	DC/AC Electricity	3-6-5
		13-13-18
2nd Semester (Spring)		
*ENG 114	Professional Research and Reporting	3-0-3
ALT 110	Biofuels I	3-0-3
MAT 121	Algebra/Trigonometry	2-2-3
ENV 110	Environmental Science	3-0-3
SST 210	Issues in Sustainability	3-0-3
MEC 110	Intro to CAD / CAM	1-2-2
		15-4-17



3rd Semester (Summer)			SRV 110	Surveying I	2-6-4
CIS 110	Introduction to computers	2-2-3		Social/Behavioral Science Elective	3-0-3
BPR 115	Elc/Fluid Power Diagrams	1-2-2			14-14-19
		3-4-5	Total Semester Hours Credit:		71
4th Semester (Fall)					
MNT 230	Pumps and Piping	1-3-2			
ALT 210	Biofuels II	3-2-4			
SST 120	Energy Use Analysis	2-2-3			
SST 250	Sustain Capstone Project	1-6-3			
	Humanities/Fine Arts Elective	3-0-3			
	Social/Behavioral Science Elective	3-0-3			
		10-11-14			
5th Semester (Spring)					
ALT 211	Biofuels Analytics	2-4-4			
ALT 221	Adv PV Sys Designs	2-3-3			
ALT 250	Thermal Systems	2-2-3			
CMT 224	Statics in Construction	2-2-3			
SST 130	Modeling Renewable Energy	2-2-3			
ELC 113	Basic Wiring	2-6-4			
		12-17-18			
Total Semester Hours Credit:		70			
<b>Green Building Track (71 SHC):</b>					
1st Semester (Fall)					
ENG 111	Expository Writing	3-0-3			
ENG 111A	Expository Writing Lab	0-2-1			
**MAT 121	Algebra/Trigonometry I	2-2-3			
SST 110	Intro to Sustainability	3-0-3			
CST 111	Construction I	3-3-4			
ALT 120	Renewable Energy Tech	2-2-3			
		13-9-17			
2nd Semester (Spring)					
CST 112	Construction II	3-3-4			
SST 210	Issues in Sustainability	3-0-3			
ENV 110	Environmental Science	3-0-3			
MEC 110	Intro to CAD / CAM	1-2-2			
ARC 111	Intro to Arch Technology	1-6-3			
ENG 114	Professional Research/Reporting	3-0-3			
		14-8-18			
3rd Semester (Summer)					
CIS 110	Introduction to computers	2-2-3			
4th Semester (Fall)					
CMT 210	Prof. Construction Supervision	3-0-3			
BPR 130	Blueprint Reading-Construction	2-0-2			
ELC 113	Basic Wiring	2-6-4			
SST 120	Energy Use Analysis	2-2-3			
	Humanities/Fine Arts Elective	3-0-3			
		12-8-15			
5th Semester (Spring)					
ARC 210	Intro to Design OR	1-3-2			
SST 140	Green Building Concepts	1-3-2			
CMT 214	Planning & Scheduling	3-0-3			
CMT 224	Statics in Construction	2-2-3			
SST 250	Sustain Capstone Project	1-6-3			

## **Sustainability Technologies Credential: Certificate in Green Building C40370GB**

The Green Building certificate is designed to prepare individuals for employment in construction where key emphasis is placed on sustainable building and design.

Coursework will include an introduction to sustainability as well as trade specific classes in green building.

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

Program Length: 2 semesters

Career Pathway Options: Associate in Applied Science in Sustainability Technology

Program Sites: Pittsboro Campus

### **Course Requirements for Green Building Certificate**

#### **A. Green Building Certificate**

ALT 120	Renewable Energy Technology	2-2-3
ARC 111	Intro to Arch Technology	1-6-3
CST 111	Construction I	3-3-4
SST 110	Intro to Sustainability	3-0-3
SST 120	Energy Use Analysis	2-2-3
SST 140	Green Building Concepts	1-3-2
		18

#### **Semester Sequence for Sustainability Certificate- Green Building**

##### **1st Semester**

SST 110	Intro to Sustainability	3-0-3
SST 120	Energy Use Analysis	2-2-3
CST 111	Construction I	3-3-4

##### **2nd Semester**

SST 140	Green Building Concepts	1-3-2
ALT 120	Renewable Energy Technology	2-2-3
ARC 111	Intro to Arch Technology	1-6-3

Total Semester Hours Credit 18

## **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

### **B. Renewable Energy Certificate**

ALT 120	Renewable Energy Tech	2-2-3
ALT 220	Photovoltaic Sys Tech	2-3-3
ALT 250	Thermal Systems	2-2-3
ELC 112	DC/AC Electricity	3-6-5
SST 110	Intro to Sustainability	3-0-3
		17

#### **Semester Sequence for Sustainability Certificate- Renewable Energy**

##### **1st Semester**

ALT 120	Renewable Energy Tech	2-2-3
ELC 112	DC/AC Electricity	3-6-5
ALT 220	Photovoltaic Sys Tech	2-3-3

##### **2nd Semester**

SST 110	Intro to Sustainability	3-0-3
ALT 250	Thermal Systems	2-2-3

Total Semester Hours Credit 17