

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 Main Campus - Day Program

Course Requirements for Laser and Photonics Technology Degree

1. General Education Requirements (15 SHC) C-L-SHC

ENG 111	Writing and Inquiry	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
	Communication; Take one course:	
ENG 112	Writing/Research in the Disciplines	3-0-3
ENG 114	Professional Research and Reporting	3-0-3
COM 231	Public Speaking	3-0-3

2. Major Requirements (25 SHC)

ELC 131	Circuit Analysis I	3-3-4
ELN 131	Analog Electronics I	3-3-4
ELN 133	Digital Electronics	3-3-4
LEO 111	Lasers and Applications	1-3-2
LEO 211	Photonics Technology	5-6-7
LEO 212	Photonics Applications	3-3-4

3. Other Major Requirements (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, take 2 SHC from:	
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

4. Other Requirements (1 SHC)

Take 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

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: 5 semesters

Career Pathway Options: Associate in Applied Science in Sustainability Technologies

Program sites: Chatham Main Campus

Course Requirements for Sustainability Technologies Degree

1. General Education Requirements (15 SHC) C-L-SHC

ENG 111	Writing and Inquiry	3-0-3
	Humanities/Fine Arts Elective	3-0-3
	Social/Behavioral Science Elective	3-0-3
	Communications, take 3 SHC from:	
ENG 112	Writing/Research in the Disc	3-0-3
ENG 114	Professional Research and Reporting	3-0-3
COM 110	Introduction to Communication	3-0-3
	Mathematics; Take one course:	
MAT 121	Algebra/Trigonometry I	2-2-3
MAT 171	Precalculus Algebra	3-2-4

2. Major Requirements (12 SHC)

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

3. Concentration Requirements (12 SHC)

ALT 120	Renewable Energy Tech	2-2-3
ALT 250	Thermal Systems	2-2-3
ELC 220	Photovoltaic Systems Tech	2-2-3

SST 130 Modeling Renewable Energy 2-2-3

4. Other Major Requirements (28 SHC)

ARC 111 Intro to Arch Technology 1-6-3
BIO 140A Environmental Biology Lab 3-3-4
CIS 110 Introduction to computers 2-2-3
CST 111 Construction I 3-3-4
CST 112 Construction II 3-3-4
CST 150 Building Science 2-2-3
ELC 111 Introduction to Electricity 2-2-3
SST 140 Green Building Design and Concepts 3-0-3

Take one course from:

SST 250 Sustain Capstone Project 1-6-3
WBL 111 Work-Based Learning 0-10-1

Technical Electives, take 3 SHC from:

ALT 110 Biofuels I 3-0-3
ALT 210 Biofuels II 3-2-4
ALT 211 Biofuels Analytics 2-4-4
ELC 221 Adv PV Sys Designs 2-3-3
MNT 230 Pumps and Piping Systems 1-3-2
BUS 280 REAL Small Business 4-0-4
AGR 139 Intro to Sustainable Ag 3-0-3

5. Other Requirements (1 SHC)

Take 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: 68

Sustainability Technologies Credential: Sustainability Certificate in Sustainability Technologies C40370S

The Sustainability Technologies certificate is designed to prepare individuals for employment in environmental, construction, alternative energy, and other industries, where key emphasis is placed on energy analysis and waste reduction along with sustainable technologies.

Course includes renewable energy, sustainability measures and green building technology. Additional topics may include green certification programs, energy management, green building design, renewable energy options, and environmental responsibility.

Graduates should qualify for positions within the construction, renewable energy or sustainability field. Employment opportunities exist in both the government and private industry sectors where graduates may function as sustainability consultants, energy analysts, or entry level green building and renewable energy technicians.

Program Length: 3 semesters

Career Pathway Options: Associate in Applied Science in

Sustainability Technologies
Program sites: Chatham Main Campus

Course Requirements for Sustainability Certificate

1. Major Requirements (12 SHC)

ALT 120 Renewable Energy Tech 2-2-3
SST 110 Intro to Sustainability 3-0-3
SST 120 Energy Use Analysis 2-2-3
SST 210 Issues in Sustainability 3-0-3

2. Other Major Requirements (3 SHC)

SST 140 Green Building Design and Concepts 3-0-3

Total Semester Hours Credit Required for Graduation: 15

Sustainability Technologies Credential: Green Building Certificate in Sustainability Technologies C40370GB

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

Coursework will include an introduction to sustainability as well as trade specific classes in green building. Graduates should qualify for positions within the construction and green certification industries. Some courses include testing options for industry recognized certificates.

Employment opportunities exist in both government and private industry sectors where graduates may function as sustainability consultants, green building technicians, or weatherization technicians.

Program Length: 3 semesters

Career Pathway Options: Associate in Applied Science in Sustainability Technology

Program Sites: Chatham Main Campus

Course Requirements for Green Building Certificate

1. Other Major Requirements (17 SHC)

ARC 111 Intro to Arch Technology 1-6-3
CST 111 Construction I 3-3-4
CST 112 Construction II 3-3-4
CST 150 Building Science 2-2-3
SST 140 Green Building & Designs Concepts 3-0-3

Total Semester Hours Credit required for Graduation: 17

Sustainability Technologies
Credential: Biofuels Certificate in
Sustainability Technologies
C40370B

This program is designed to equip students with the skills needed to attain a technical position in the biofuels industry.

Students learn the fundamentals of biofuels as well as laboratory and mechanical skills need to conduct quality control testing and diagnose biofuels related problems.

Upon completion of the certificate students will be employable in a variety of biofuels markets, including fuel production, analysis, marketing, and distribution.

Program Length: 2 semesters

Career Pathway Options: Associate in Applied Science in Sustainability Technologies

Program sites: Chatham Main Campus

Course Requirements for Biofuels Certificate:

1. Major Requirements (3 SHC)

ALT 120	Renewable Energy Tech	2-2-3
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2. Other Major Requirements (13 SHC)

ALT 110	Biofuels I	3-0-3
ALT 210	Biofuels II	3-2-4
ALT 211	Biofuels Analytics	2-4-4
MNT 230	Pumps and Piping	1-3-2

Total Semester Hours Credit Required for Graduation: 16

Sustainability Technologies
Credential: Renewable Energy Certificate in
Sustainability Technologies
C40370RE

The Renewable Energy certificate is designed to prepare individuals for employment in 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, solar thermal, or biofuels technicians.

Program Length: 2 semesters

Career Pathway Options: Associate in Applied Science in Sustainability Technologies

Program Sites: Chatham Main Campus

Course Requirements for Renewable Energy Certificate

I. Major Requirements (12 SHC)

ALT 120	Renewable Energy Tech	2-2-3
ALT 250	Thermal Systems	2-2-3
ELC 220	Photovoltaic Systems Technology	2-3-3
SST 130	Modeling Renewable Energy	2-2-3

2. Other Major Requirements (6 SHC)

ALT 110	Biofuels I	3-0-3
ELC 111	Intro to Electricity	2-2-3

Total Semester Hours Credit required for Graduation: 18