

**C40320**

A course of study that prepares the students to use basic engineering principles and technical skills to design, develop, test, and troubleshoot projects involving mechanical systems. Includes instruction in principles of mechanics, applications to specific engineering systems, design testing procedures, prototype and operational testing and inspection procedures, manufacturing system-testing procedures, test equipment operation and maintenance, computer applications, critical thinking, planning and problem solving, and oral and written communications. 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 ASQC, SME, and NICET.

Program Length: 2 semesters

Program Location: Lee Main Campus

**Course Requirements for Mechanical Engineering Technology Certificate:****1. General Education (0 SHC)****2. Major Requirements (6 SHC)**

DFT-151	CAD I	2-3-3
DFT-154	Intro to Solid Modeling	2-3-3

**3. Other Major Requirements (10 SHC)**

DDF-211	Design Process I	1-6-4
MEC-111	Machine Processes I	1-4-3
DFT-152	CAD II	2-3-3

Total Semester Hours Credit required for graduation: 16

**Mechanical Engineering Technology  
Credential: Certificate in Mechanical  
Engineering Technology, Engineering Graphics  
C40320EG**

A course of study that prepares the students to use basic engineering principles and technical skills to design, develop, test, and troubleshoot projects involving mechanical systems. Includes instruction in principles of mechanics, applications to specific engineering systems, design testing procedures, prototype and operational testing and inspection procedures, manufacturing system-testing procedures, test equipment operation and maintenance, computer applications, critical thinking, planning and problem solving, and oral and written communications. 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 ASQC, SME, and NICET.

Program Length: 4 semesters

Program Location: Lee Main Campus

**Course Requirements for Mechanical Engineering Technology, Engineering Graphics Certificate:****1. General Education (0 SHC)****2. Major Requirements (3 SHC)**

DFT-154	Intro to Solid Modeling	2-3-3
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**3. Other Major Requirements (10 SHC)**

DFT-153	CAD III	2-3-3
DDF-211	Design Process I	1-6-4
DFT-254	Intermed Solid Model/Render	2-3-3

Total Semester Hours Credit required for graduation: 13

**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 one course:	
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
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 (29 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
ISC 110	Workplace Safety	1-0-1
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 I	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: 69

**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)** C-L-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
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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. Major Requirements (3 SHC)**

SST 120	Energy Use Analysis	2-2-3
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**2. Concentration Requirements (3 SHC)**

SST 130	Modeling Renewable Energy	2-2-3
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**3. Other Major Requirements (12 SHC)**

CST 111	Construction I	3-3-4
CST 112	Construction II	3-3-4
CST 150	Building Science	2-2-3
ISC 110	Workplace Safety	1-0-1

Total Semester Hours Credit required for Graduation: 18

**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)**

	C-L-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