

Sustainability Technologies

Sustainability Technologies (A40370)

Degree Awarded

The Associate in Applied Science degree – Sustainability Technologies is awarded by the college upon completing this program.

Admissions

- A high school diploma or equivalent is required.
- Central Piedmont placement tests are required in English and mathematics. Developmental classes in mathematics and English courses are available for students to build basic skills and knowledge.
- Counseling and orientation appointments follow placement testing.
- Students should see a faculty advisor before registration.
- Many courses have prerequisites or co-requisites; check the Courses section for details.

Note

Students who do not take program-related courses for a one-year period must re-enter the program under the college catalog requirements in effect at the time of re-entry.

Contact Information

Sustainability Technologies is in the Engineering Technologies Division. For more information, contact the Program Chair at 704.330.6836 or visit the Sustainability Technologies page.

General Education Requirements

ENG 111	Writing and Inquiry	3.0
Select 3 credits from the following courses:		3.0
COM 110	Introduction to Communication	
COM 231	Public Speaking	
ENG 112	Writing and Research in the Disciplines	
ENG 113	Literature-Based Research	
ENG 114	Professional Research & Reporting	
Select one of the following:		3.0
MAT 152	Statistical Methods I	
MAT 121	Algebra/Trigonometry I	
MAT 171	Precalculus Algebra	
MAT 271	Calculus I	
Select 3 credits from the following courses:		3.0
ECO 251	Principles of Microeconomics	
ECO 252	Principles of Macroeconomics	
HIS 111	World Civilizations I	
HIS 112	World Civilizations II	
HIS 131	American History I	
HIS 132	American History II	
POL 120	American Government	
PSY 150	General Psychology	
SOC 210	Introduction to Sociology	
Select 3 credits of the following:		3.0

ART 111	Art Appreciation
ART 114	Art History Survey I
ART 115	Art History Survey II
DRA 111	Theatre Appreciation
HUM 120	Cultural Studies
HUM 130	Myth in Human Culture
MUS 110	Music Appreciation
MUS 112	Introduction to Jazz
PHI 215	Philosophical Issues
PHI 240	Introduction to Ethics
REL 110	World Religions

Major Requirements

ACA 122	College Transfer Success	1.0
ENV 110	Environmental Science	3.0
SST 110	Introduction to Sustainability	3.0
SST 120	Energy Use Analysis	3.0
SST 210	Issues in Sustainability	3.0
ENV 110A	Environmental Science Laboratory	1.0
ENV 226	Environmental Law	3.0
ARC 114	Architectural CAD	2.0
SST 250	Sustainability Capstone Project	3.0
ARC 225	Architectural Building Information Modeling I	2.0
PHY 110	Conceptual Physics	3.0
PHY 110A	Conceptual Physics Lab	1.0
LID 111	Low Impact Development Design Principles	3.0
or ELC 111	Introduction to Electricity	

Energy/Bldg Track

Complete one of two groups (See below) 12.0

Technical Electives

Select 7 credits from the following:		7.0
SST 140	Green Building and Design Concepts	
ARC 111	Introduction to Architectural Technology	
BUS 139	Entrepreneurship I	
BUS 230	Small Business Management	
WBL 112	Work-Based Learning I	
WBL 122	Work-Based Learning II	
ENV 120	Earth Science	
GEO 131	Physical Geography I	
GEO 111	World Regional Geography	
GEL 120	Physical Geology	
GEL 230	Environmental Geology	
ALT 110	Biofuels I	
ARC 112	Construction Materials & Methods	
CIV 230	Construction Estimating	
LAR 120	Sustainable Development	
LAR 111	Introduction to Landscape Architecture Technology	
LAR 113	Residential Landscape Design	
EGR 120	Engineering and Design Graphics	
MEC 111	Machine Processes I	
MEC 161	Manufacturing Processes I	
MEC 180	Engineering Materials	
BIO 140	Environmental Biology	

BIO 140A	Environmental Biology Lab
CHM 131	Introduction to Chemistry
CHM 131A	Introduction to Chemistry Lab
CHM 132	Organic and Biochemistry
SRV 111	Surveying II
AHR 111	HVACR Electricity
AHR 112	Heating Technology
AHR 113	Comfort Cooling
ELC 112	DC/AC Electricity
ELC 113	Residential Wiring
ELC 118	National Electrical Code
BPR 130	Print Reading-Construction
CMT 214	Planning and Scheduling
CMT 216	Costs and Productivity
ARC 111	Introduction to Architectural Technology
ARC 210	Intro to Sustain Design
ARC 230	Environmental Systems
CAR 110	Introduction to Carpentry
CAR 114	Residential Building Codes
CIV 111	Soils and Foundations
DBA 110	Database Concepts
ENV 218	Environmental Health
ENV 224	Land Resource Management
GIS 121	Georeferencing & Mapping
MEC 275	Engineering Mechanisms
PHY 131	Physics-Mechanics
PHY 132	Physics-Electricity & Magnetism
SRV 110	Surveying I
CMT 210	Construction Management Fundamentals
BPR 130	Print Reading-Construction
SRV 210	Surveying III
ELC 221	Advanced Photovoltaic System Designs
CEG 210	Construction Materials & Methods
CEG 230	Subdivision Planning & Design
CEG 212	Introduction to Environmental Technology
ELC 220	Photovoltaic System Technology
ELC 230	Wind and Hydro Power Systems
EGR 250	Statics/Strength of Mater
CEG 211	Hydrology & Erosion Control
MEC 275	Engineering Mechanisms
GIS 111	Introduction to GIS
GIS 240	Air Photo Interpretation
GIS 249	Remote Sensing
GIS 125	CAD for GIS
BIO 111	General Biology I

Total Credits **65**

Energy/Bldng Tracks

Group 1

ALT 120	Renewable Energy Technologies	3.0
SST 130	Modeling Renewable Energy	3.0
ALT 250	Thermal Systems	3.0

ELC 220	Photovoltaic System Technology	3.0
Total Credits		12

Group 2

CST 111	Construction I	4.0
CST 150	Building Science	3.0
CMT 120	Codes and Inspections	3.0
SST 140	Green Building and Design Concepts	3.0
Total Credits		13

SST 110. Introduction to Sustainability. 3.0 Credits. Class-3.0. Clinical-0.0. Lab-0.0. Work-0.0

This course introduces sustainability issues and individual contributions toward environmental sustainability. Topics include management processes needed to maximize renewable/non-renewable energy resources, economics of sustainability, and reduction of environmental impacts. Upon completion, students should be able to discuss sustainability practices and demonstrate an understanding of their effectiveness and impacts.

SST 120. Energy Use Analysis. 3.0 Credits. Class-2.0. Clinical-0.0. Lab-2.0. Work-0.0

This course introduces the principles of analyzing energy use, energy auditing tools and techniques, conservation techniques, and calculating energy savings. Topics include building system control theory, calibrating digital controls, energy loss calculations, and applicable conservation techniques. Upon completion, students should be able to demonstrate an understanding of energy use, audits, and controls in the analysis of energy consumption.

SST 130. Modeling Renewable Energy. 3.0 Credits. Class-2.0. Clinical-0.0. Lab-2.0. Work-0.0

This course introduces software and other technologies used for modeling renewable energy systems. Topics include renewable energy modeling software applications, data analysis, renewable energy sources, and cost of renewable energy systems. Upon completion, students should be able to use appropriate technology to model the effectiveness of renewable energy systems.

SST 140. Green Building and Design Concepts. 3.0 Credits. Class-3.0. Clinical-0.0. Lab-0.0. Work-0.0

This course is designed to introduce the student to sustainable building design and construction principles and practices. Topics include sustainable building rating systems and certifications, energy efficiency, indoor environmental quality, sustainable building materials and water use. Upon completion, students should be able to identify the principles and practices of sustainable building design and construction.

SST 210. Issues in Sustainability. 3.0 Credits. Class-3.0. Clinical-0.0. Lab-0.0. Work-0.0

This course introduces the long-term impacts and difficulties of applying sustainability concepts in an organization, business, or society. Topics include the application of sustainable technologies and the analysis of affordability, efficiencies, recycling, and small and large-scale design. Upon completion, students should be able to recognize the possible limitations of sustainable technologies and be prepared to reconcile such conflicts.

Prerequisites: Take SST 110

SST 250. Sustainability Capstone Project. 3.0 Credits. Class-1.0.

Clinical-0.0. Lab-6.0. Work-0.0

This course introduces an integrated team approach to a sustainability topic of interest to students, faculty, or professional community. Topics include problem identification, proposal preparation, conceptual design, and an effective project work schedule. Upon completion, students should be able to integrate the many facets of a topic based on environmental sustainability into a completed project.

Prerequisites: Take SST 110