

Sustainability Technologies

The Sustainability Technologies curriculum prepares individuals for employment in solar energy installation and design, renewable energy, energy management, sustainable construction, corporate sustainability, environmental monitoring, and related industries. Major emphasis is placed on minimizing the impact on the natural environment while increasing social capital and promoting sustainable economics.

Course work includes environmental monitoring, solar technologies, green building practices, energy auditing and management, safety, problem-solving, and landscape analysis. Computer application addresses the construction, modeling, and analysis of specific scenarios relating to creating a sustainable environment.

Graduates should qualify for employment within solar energy, renewable energy, green building, energy management, design, and engineering. Employment opportunities include, but are not limited to, the following: solar energy technicians, solar energy designers, sustainability technicians, energy auditors, environmental engineering technicians, construction management, and renewable energy specialists.

For specific information about potential positions and wages in sustainability technologies employment, visit the Central Piedmont Career Coach website.

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

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|---------|-------------------------------|-----------------|
| ENG 111 | Writing and Inquiry | 3.0 |
| COM 110 | Introduction to Communication | 3.0 |
| | or COM 231 | Public Speaking |

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| Select 3 credits from the following courses: | 3.0 |
| ENG 112 | Writing and Research in the Disciplines |
| ENG 113 | Literature-Based Research |
| ENG 114 | Professional Research & Reporting |

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| 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 |

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| 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 |

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| 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

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|----------|---|-----------------------------|
| 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

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| Complete one of two groups (See below) | 12.0 |
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Technical Electives

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| Select 7 credits from the following: | 7.0 |
| SST 140 | Green Building and Design Concepts |
| ARC 111 | Introduction to Architectural Technology |

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| 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 |

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| 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 |
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| Total Credits | 68 |

Energy/Bldng Tracks

Group 1

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|---------------|--------------------------------|-----|
| 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 |
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| Total Credits | | 12 |

Group 2

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|---------------|------------------------------------|-----|
| 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 |
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| Total Credits | | 13 |

No diplomas are offered in Sustainability Technologies.

Sustainability Technology Certificates (C40370)

- Sustainability Technologies Certificate – Specialization in Renewable Energy (C40370-C1) (p. 2)
- Sustainability Technologies Certificate – Specialization in Energy and the Environment (C40370-C5) (p. 3)

Sustainability Technologies Certificate – Specialization in Renewable Energy (C40370-C1)

Major Requirements

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|---------------|--------------------------------|-----|
| SST 110 | Introduction to Sustainability | 3.0 |
| SST 120 | Energy Use Analysis | 3.0 |
| SST 130 | Modeling Renewable Energy | 3.0 |
| ELC 220 | Photovoltaic System Technology | 3.0 |
| ALT 120 | Renewable Energy Technologies | 3.0 |
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| Total Credits | | 15 |

Sustainability Technologies Certificate – Specialization in Energy and the Environment (C40370-C5)

Major Requirements

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|---------------|----------------------------------|-----|
| SST 110 | Introduction to Sustainability | 3.0 |
| SST 120 | Energy Use Analysis | 3.0 |
| ALT 120 | Renewable Energy Technologies | 3.0 |
| ENV 110 | Environmental Science | 3.0 |
| ENV 110A | Environmental Science Laboratory | 1.0 |
| ENV 226 | Environmental Law | 3.0 |
| Total Credits | | 16 |

The following is the suggested plan for when to take each course to complete the Associate in Applied Science degree, based on the program requirements of the 2022-2023 catalog. This is only a recommendation — you may take courses in another order upon consultation with your advisor. This plan is based on you starting with college-level math and English courses, starting your program in the fall, and attending full-time. You can also follow this sequence if you attend part-time. Speak with an advisor about the plan and any questions. This program might also offer diplomas or certificates; visit the catalog or contact the program for details.

Sustainability Technologies - Green Building suggested course sequence

Sustainability Technology - Renewable Energy course sequence