# Sustainability Technologies

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 2023-2024 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 your academic advisor about the plan and any questions. This program might also offer diplomas or certificates; visit the catalog or contact the program for details. Visit the Academic Advising page for instructions on locating your assigned advisor: https://www.cpcc.edu/academics/academic-advising

## Renewable Energy Track

| Term I | | Credits |
|---|---|---|
| SST 110 | Introduction to Sustainability | 3.0 |
| ELC 220 | Photovoltaic System Technology | 3.0 |
| ENV 110 | Environmental Science | 3.0 |
| ENV 110A | Environmental Science Laboratory | 1.0 |
| SST 120 | Energy Use Analysis | 3.0 |
| ACA 122 | College Transfer Success | 1.0 |
| | **Credits** | **14** |
| **Term II** | | |
| ALT 250 | Thermal Systems | 3.0 |
| PHY 110 | Conceptual Physics | 3.0 |
| PHY 110A | Conceptual Physics Lab | 1.0 |
| Behavioral/Social Science | | 3.0 |
| ARC 114 | Architectural CAD | 2.0 |
| LID 111<br>or ELC 111 | Low Impact Development Design Principles<br>or Introduction to Electricity | 3.0 |
| | **Credits** | **15** |
| **Term III** | | |
| ENG 111 | Writing and Inquiry | 3.0 |
| MAT 121 | Algebra/Trigonometry I | 3.0 |
| | **Credits** | **6** |
| **Term IV** | | |
| English/Communication | | 3.0 |
| ENV 226 | Environmental Law | 3.0 |
| ARC 225 | Architectural Building Information Modeling I | 2.0 |
| ALT 120 | Renewable Energy Technologies | 3.0 |
| Technical Elective | | 4.0 |
| | **Credits** | **15** |
| **Term V** | | |
| SST 130 | Modeling Renewable Energy | 3.0 |
| SST 250 | Sustainability Capstone Project | 3.0 |
| SST 210 | Issues in Sustainability | 3.0 |
| Humanities/Fine Arts | | 3.0 |
| Technical Elective | | 3.0 |
| | **Credits** | **15** |
| | **Total Credits** | **65** |

## Green Building Track

| Term I | | Credits |
|---|---|---|
| SST 110 | Introduction to Sustainability | 3.0 |
| CST 111 | Construction I | 4.0 |
| ENV 110 | Environmental Science | 3.0 |
| ENV 110A | Environmental Science Laboratory | 1.0 |
| SST 120 | Energy Use Analysis | 3.0 |
| ACA 122 | College Transfer Success | 1.0 |
| | **Credits** | **15** |
| **Term II** | | |
| CST 150 | Building Science | 3.0 |
| PHY 110 | Conceptual Physics | 3.0 |
| PHY 110A | Conceptual Physics Lab | 1.0 |
| Behavioral/Social Science | | 3.0 |
| ARC 114 | Architectural CAD | 2.0 |
| LID 111<br>or ELC 111 | Low Impact Development Design Principles<br>or Introduction to Electricity | 3.0 |
| | **Credits** | **15** |
| **Term III** | | |
| ENG 111 | Writing and Inquiry | 3.0 |
| MAT 121 | Algebra/Trigonometry I | 3.0 |
| | **Credits** | **6** |
| **Term IV** | | |
| English/Communication | | 3.0 |
| ENV 226 | Environmental Law | 3.0 |
| ARC 225 | Architectural Building Information Modeling I | 2.0 |
| CMT 120 | Codes and Inspections | 3.0 |
| Technical Elective | | 4.0 |
| | **Credits** | **15** |
| **Term V** | | |
| SST 140 | Green Building and Design Concepts | 3.0 |
| SST 250 | Sustainability Capstone Project | 3.0 |
| SST 210 | Issues in Sustainability | 3.0 |
| Humanities/Fine Arts | | 3.0 |
| Technical Elective | | 3.0 |
| | **Credits** | **15** |
| | **Total Credits** | **66** |

**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