

Associate in Applied Science

Sustainability Technologies

(A40370)

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Overview

The Sustainability Technologies Associates Degree curriculum will be based on a core of required science and engineering courses and feature four specialty tracks that will prepare technicians to meet workforce demands for highly skilled workers. The required, core courses will include math, biology,



ecology, sustainability, CAD, GIS and alternative energy courses. Students will also be required to master technical training courses with topics including energy, environmentalism, engineering, and their economic and social impacts.

Alternative Energy Track: traditional and alternative means of producing, using and conserving energy, with courses on alternative energy system design, installation and maintenance and the environmental impact of energy generation

Green Building Track: courses in the design, selection and installation of building materials and equipment that conserve energy without sacrificing function and design

Environmental Engineering Track: courses in land mapping, reclamation and environmental conservation in the engineering and creation of building sites, roads, farms, and water systems with courses in environmental planning, environmental ethics, sustainable development, and environmental economics.

Sustainable Manufacturing Track: courses in the skills required to operate and maintain advanced manufacturing systems used to manufacture energy equipment and products

Admissions

- High School Diploma or equivalent is required. High school students preparing for an Engineering Technology program should complete courses in algebra, geometry, and advanced math. Skills and proficiencies should be developed in writing, computer literacy, and science.
- Placement tests in English and Mathematics determine the entry-level courses that match individual needs. Advancement Studies mathematics and English courses are available for students to build basic skills and knowledge.
- A counseling/orientation appointment follows placement testing. Many courses have prereq. or corequisites; check catalog for details.

Sustainability Technologies

FIRST STEP TO ENROLL: Apply for admission; details at: <http://www1.cpcc.edu/admissions/admissions>

Consult a faculty advisor or College counselor prior to registration.

CPCC is an Equal Opportunity Institution.

CURRICULUM SCHEDULE (Fall 2010)

| | Class | Lab | Credits | |
|---|---------------------------------------|-----|---------|---|
| Fall Semester (Year 1) | | | | |
| CIS 110 | Introduction to Computers | 2 | 2 | 3 |
| SST 110 | Introduction to Sustainability | 3 | 0 | 3 |
| ENV 110 | Environmental Science | 3 | 0 | 3 |
| ENV 110A | Environmental Science Lab | 0 | 1 | 1 |
| MAT 121 | Algebra/Trigonometry I | 2 | 2 | 3 |
| Spring Semester (Year 1) | | | | |
| BIO 111 | General Biology I | 3 | 3 | 4 |
| SST 120 | Energy Use Analysis | 2 | 2 | 3 |
| GIS 111 | Introduction to GIS | 2 | 2 | 3 |
| CIV 125 | Civil/Surveying CAD | 1 | 6 | 3 |
| or * | | | | |
| DFT 151 | CAD I | 2 | 3 | 3 |
| Concentration Course: | | | | |
| | | 2 | 6 | 4 |
| Summer Semester (Year 1) | | | | |
| ENG 111 | Expository Writing | 3 | 0 | 3 |
| COM 110 | Introduction to Communication | 3 | 0 | 3 |
| Fall Semester (Year 2) | | | | |
| ENG 114 | Professional Research & Reporting | 3 | 0 | 3 |
| SST 120 | Energy Use Analysis | 2 | 2 | 3 |
| GIS 240 | Air Photo Interpretation | 2 | 2 | 3 |
| or | | | | |
| GIS 249 | Remote Sensing | 2 | 2 | 3 |
| ENV 226 | Environmental Law | 3 | 0 | 3 |
| Social/Behavioral Sciences Elective | | | | |
| Concentration Course: | | | | |
| | | 2 | 6 | 4 |
| Spring Semester (Year 2) | | | | |
| SST 210 | Issues in Sustainability Technologies | 3 | 0 | 3 |
| SST 250 | Sustainability Capstone Project | 1 | 6 | 3 |
| Humanities/Fine Arts Elective | | | | |
| | | 3 | 0 | 3 |
| Technical Elective** | | | | |
| | | 3 | 0 | 3 |
| Concentration Course: | | | | |
| | | 2 | 3 | 3 |
| Concentration Courses: | | | | |
| Alternative Energy Concentration: | | | | |
| ALT 120 | Renewable Energy Tech | 2 | 2 | 3 |
| SST 130 | Modeling Renewable Energy Systems | 2 | 2 | 3 |
| ALT 220 | Photovoltaic Sys Tech | 2 | 3 | 3 |
| Green Building Concentration: | | | | |
| SRV 112 | Landscape Arch Surveying | 2 | 6 | 4 |
| SST 140 | Green Building Concepts | 1 | 3 | 2 |
| CMT 210 | Professional Construction Supervision | 3 | 0 | 3 |
| Environmental Engineering Concentration: | | | | |
| CIV 110 | Statics/Strengths of Materials | 2 | 6 | 4 |
| CIV 211 | Hydraulics and Hydrology | 2 | 3 | 3 |
| CIV 212 | Environmental Planning | 2 | 3 | 3 |
| Sustainable Manufacturing Concentration: | | | | |
| ISC 120 | Industrial Ecology | 2 | 2 | 3 |
| ISC 220 | Lean Manufacturing Systems | 2 | 2 | 3 |
| MEC 155 | Environmentally Benign Manufacturing | 2 | 2 | 3 |

* Students should select a CAD course that best fits their chosen concentration. Alternative Energy and Sustainable Manufacturing students should select DFT 151. Green Building and Environmental Engineering students should select CIV 125.

** The Environmental Engineering concentration required ENV 232 Site Assessment and Remediation as the Technical Elective. All other concentrations may chose from the list of technical electives for program A40370, found in the College Catalog.

CPCC's Sustainability Technologies curriculum certificates prepare individuals for employment in environmental consulting, construction management, alternative energy, manufacturing, and related industries. Course work includes safety, estimating, productivity, problem solving, landscape analysis, alternative energy resource management and environmental considerations.

Energy and the Environment (C40370-C5)

| | Lecture | Lab | Credit |
|--|---------|-----|--------|
| SST 110 Introduction to Sustainability | 3 | 0 | 3 |
| SST 120 Energy Use Analysis | 2 | 2 | 3 |
| ENV110 Environmental Science | 3 | 0 | 3 |
| ENV110A Environmental Science Lab | 0 | 1 | 1 |
| ENV 226 Environmental Law | 3 | 0 | 3 |
| ALT 120 Renewable Energy Technology | 2 | 2 | 3 |

Renewable Energy (C40370-C1)

| | Lecture | Lab | Credit |
|--|---------|-----|--------|
| SST 110 Introduction to Sustainability | 3 | 0 | 3 |
| SST 130 Modeling Renewable Energy Systems | 2 | 2 | 3 |
| ALT 120 Renewable Energy Technology | 2 | 2 | 3 |
| ALT 220 Photovoltaic Systems Technology and Design | 2 | 3 | 3 |
| SST 120 Energy Use Analysis | 2 | 2 | 3 |

Environmental Engineering (C40370-C2)

| | Lecture | Lab | Credit |
|--|---------|-----|--------|
| SST 110 Introduction to Sustainability | 3 | 0 | 3 |
| CIV 110 Statics/Strengths of Materials | 2 | 6 | 4 |
| CIV 111 Soils and Foundations | 2 | 6 | 4 |
| CIV 211 Hydraulics and Hydrology | 2 | 3 | 3 |
| CIV 212 Environmental Planning | 2 | 3 | 3 |

Sustainable Manufacturing (C40370-C3)

| | Lecture | Lab | Credit |
|--|---------|-----|--------|
| SST 110 Introduction to Sustainability | 3 | 0 | 3 |
| ISC 120 Industrial Ecology | 2 | 2 | 3 |
| ISC 220 Lean Manufacturing Systems | 2 | 2 | 3 |
| MEC 155 Environmentally Benign Manufacturing | 2 | 2 | 3 |
| MEC 161 Manufacturing Processes I | 3 | 0 | 3 |

Geospatial Technology (C40370-C4)

| | Lecture | Lab | Credit |
|--|---------|-----|--------|
| SST 110 Introduction to Sustainability | 3 | 0 | 3 |
| GIS 111 Introduction to Geographic Information Systems | 2 | 2 | 3 |
| GIS 225 Advanced Methods in GIS | 2 | 2 | 3 |
| GIS 240 Air Photo Interpretation | 2 | 2 | 3 |
| GIS 249 Remote Sensing | 2 | 2 | 3 |