

# Sustainable Energy



## OPPORTUNITIES START HERE

The Sustainable Energy Occupational Endorsement Certificate program provides education and training in energy efficiency and renewable energy and addresses many contemporary energy issues. The program provides the fundamental concepts, basic academic preparation, and skills necessary for students to pursue either employment or further training as sustainable energy technicians in the energy, construction, utility, and maintenance industries. It can also serve as a stepping stone into science-, engineering-, and architecture-related certificate, associate, or baccalaureate programs.

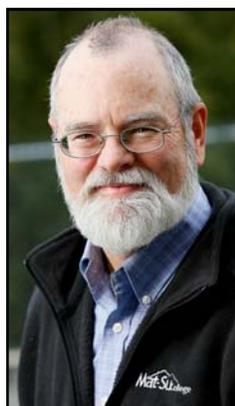
Students are introduced to the basic principles of various energy conservation and renewable energy technologies. Coursework incorporates the appropriate skills and knowledge necessary for students to become effective employees. Students will also be able to apply course content to personal projects, such as home retrofits and off-grid cabins.

### Examples of Program Classes:

- Introduction to Sustainable Energy
- Applied Physics for Sustainable Energy
- Cold Climate Construction
- Solar Photovoltaic Systems
- Solar Hot Water Systems
- Small Wind Systems
- Home Energy Basics
- Ground-source Heat Pumps
- Biodiesel & Vegetable Oil Fuel Systems

### Career Paths Related to Sustainable Energy :

- Renewable energy technician – including systems design, installation (both residential and commercial), operations and maintenance, sales and service
- Building energy efficiency – including energy auditing, weatherization and building retrofits, and energy management, on both the residential and commercial scales
- Building design and construction – including architecture, engineering, construction management, consulting on clean energy options for businesses and communities, for both new construction and retrofits
- Community planning – including planning for energy security and the transition to local clean energy solutions
- Engineering (civil, structural, mechanical, electrical) and geology involved in developing large scale renewable energy system projects



**Asst. Professor Mark Masteller** is the Sustainable Energy Program director, coming to Mat-Su College from his recent position as Alaska Director for Cascadia Green Building Council. Prior to that, Mark served as the executive director of the Alaska Center for Appropriate Technology and worked in many parts of our great state as a wildlife biologist. Along the way, he helped with conceptual design and development of the Mat-Su Community Recycling Center and was one of the original co-founders of the Bioneers in Alaska Conference.

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Matanuska-Susitna College  
UNIVERSITY of ALASKA ANCHORAGE



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# SUSTAINABLE ENERGY (OEC)

## Graduation Requirements

The Sustainable Energy Occupational Endorsement Certificate requires a minimum of 16 credits. The program is structured as 9 credits of foundation knowledge and a minimum of 7 credits of electives that allow students (in consultation with their advisor) to specialize in several emphasis areas related to sustainable energy, or to customize their program. Other classes may be substituted upon consultation and approval by faculty and advisors.

### ➔ CORE REQUIREMENTS (9 credits)

RE A100 Introduction to Sustainable Energy (3)  
RE A203 Sustainable Energy Project Development (3)  
MATH A105 Intermediate Algebra (3)

### ➔ Choose at least 7 Elective Credits from the following:

RE A102 Applied Physics for Sustainable Energy (3)  
RE A110 Intro to Solar Photovoltaic Systems (1)  
RE A120 Intro to Solar Hot Water Systems (1)  
RE A130 Introduction to Small Wind Systems (1)  
RE A140 Home Energy Basics (1)  
RE A210 Cold Climate Construction (3)  
RH A105 Electrical Circuits for Ref & Heating I (3)  
RH A211 Customer Relations and Job Etiquette (1)

➔ 16 credits is required for the Occupational Endorsement Certificate.

## PROGRAM STUDENT LEARNING OUTCOMES

Upon completion of the occupational endorsement certificate, students will demonstrate:

- Knowledge of energy efficiency and sustainable energy resources and technologies
- Introductory understanding of basic physics and power management as applied to energy efficiency and sustainable energy
- Entry-level skills for energy efficiency/renewable energy project development and management

## APPLICATION PROCESS

### STUDENT SERVICES

- ➊ Apply for admission at <http://matsu.alaska.edu/future-students>
- ➋ Review admission requirements for your student type.
- ➌ Submit required documents to Mat-Su College Student Services.
- ➍ Take the test for English and math course placement. Call the Mat-Su College Learning Center at 907.745.9772 for testing information.
- ➎ Make an appointment for academic advising at 907.745.9762 and meet regularly with an advisor.
- ➏ Access the Future Student Checklist online at <http://matsu.alaska.edu/future-students/whats-next> to stay on track.

*Matanuska-Susitna College is accredited through the University of Alaska Anchorage and the Commission on Colleges of the Northwest Association of Schools and Colleges. This brochure is for information purposes only and does not constitute a contract. UAA is an EO/AA employer and educational institution.*

**Watch for program updates and sign up for our contact list at:**  
[matsu.alaska.edu/office/student-services/degree-programs/renewable-energy/](http://matsu.alaska.edu/office/student-services/degree-programs/renewable-energy/)



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