

# Environmental Technology Certificate

## Solar Thermal Technology

The Environmental Technology certificates are a collaborative partnership among Cape Cod Community College, Massachusetts Maritime Academy and University of Massachusetts - Dartmouth, for persons seeking to acquire skills and knowledge in eight environmental fields: Coastal Zone Management, Environmental Site Assessment, Geographic Information Systems, Photovoltaic Technology, Small Wind Technology, Solar Thermal Technology, Wastewater Management, and Water Supply. Students may need to travel to each of the three schools in order to complete all the courses in any certificate program. Students are encouraged to enroll in ENV260 Cooperative Work Experience/Internship.

| Course #      | Course Title                               | Credits | Prerequisites  | Semester Offered     | Semester Taken | Grade Earned |
|---------------|--|---------|--|----------------------|----------------|--------------|
| ENV170        | Renewable Energy Sources                   | 3       | (MAT020 or MAT025), ENL020 & ENL050 or satisfactory basic skills assessment scores | Fall, Spring, Summer |                |              |
| ENV171        | Energy Efficiency and Conservation Methods | 3       | (MAT020 or MAT025), ENL020 & ENL050 or satisfactory basic skills assessment scores | Fall                 |                |              |
| ENV173        | Introduction to Solar Energy               | 3       | (MAT020 or MAT025), ENL020 & ENL050 or satisfactory basic skills assessment scores | Spring               |                |              |
| ENV179        | Solar Thermal Installation                 | 3       | ENV173   | Varies               |                |              |
| ENV260        | Internship (recommended)                   | 3       | ENV118 or ENV170 & permission of instructor  | Fall, Spring, Summer |                |              |
| Total Credits |  | 12/15   |  |                      |                |              |

### Overview

This certificate provides a solid understanding of solar hot water technology, site analysis, system design, and installation methods. Courses in this certificate count towards training requirements for the North American Board of Certified Energy Practitioners Solar Thermal Installer Certification. This certificate may appeal to anyone interested in learning more about solar energy and applying that knowledge to their home, business, or career.

### Career Outlook

The "clean energy cluster" is a large and fastest growing segment of the Massachusetts economy. Solar energy represents a significant portion of the cluster and its projected growth. A person with this certificate has basic knowledge of solar thermal systems, suitable for a supervised, entry-level position with a dealer/installer, or other solar industry company or organization. Professionals in building trades can gain the knowledge necessary to expand their services to include solar thermal system design, consulting, specification, and installation. A wide range of additional career opportunities are available within the clean energy cluster for students with degrees in a variety of fields, such as science, engineering, business, law, political science, and communication.

### Program Outcomes

Upon completion of the Solar Thermal Technology Certificate, students are able to:

- Conduct a basic home energy audit and make energy efficiency and conservation recommendations.
- Conduct a solar energy site assessment and quantify the amount of solar energy available at a particular site.
- Properly site, size, and design a residential scale solar hot water system for both domestic hot water and pool heating applications.
- Accurately explain the benefits and limitations of solar hot water systems.
- Conduct an economic and environmental assessment of proposed solar hot water systems.