

# Environmental Technology Certificate Photovoltaic 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, ENL020 & ENL050 or satisfactory basic skills assessment scores	Fall, Spring, Summer		
ENV171	Energy Efficiency and Conservation Methods	3	MAT020, ENL020 & ENL050 or satisfactory basic skills assessment scores	Fall		
ENV173	Introduction to Solar Energy	3	MAT020, ENL020 & ENL050 or satisfactory basic skills assessment scores	Spring		
ENV178	Photovoltaic 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 photovoltaic technology, site analysis, system design, and installation methods. Students completing ENV173 and ENV178 are qualified to take the North American Board of Certified Energy Practitioners Entry Level Photovoltaic Certificate of Knowledge Exam. 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 fast 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 photovoltaic systems, suitable for a supervised, entry-level position with a dealer/installer, or other PV industry company or organization. Professionals in building trades can gain the knowledge necessary to expand their services to include photovoltaic 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 Photovoltaic 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 photovoltaic system for both on and off grid applications.
- Accurately explain the benefits and limitations of photovoltaic systems.
- Conduct an economic and environmental assessment of proposed photovoltaic systems.