Environmental Technology Certificate
Geographic Information Systems

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
ENV118	Intro. to Environmental Science	4	MAT020, ENL020 & ENL050 or satisfactory basic skills assessment scores	Fall, Spring, Summer		
ENV160	Introductory Concepts in GIS	3	None	Spring, Summer		
ENV163	Geographic Information Systems I	3	ENV118 & ENV160	Fall		
ENV164	Geographic Information Systems II	3	ENV118 & ENV160 & ENV163	Spring		
ENV260	Internship (recommended)	3	ENV118 or ENV170 & permission of instructor	Fall, Spring, Summer		
Total Credits		13/16				

Overview

GIS is a computer database management system which combines computer graphics, artificial intelligence, and high speed communication to store, retrieve, manipulate, analyze, and map geographic data. The technology is used to process complex geographic and environmental data for informed decision making by government, municipal and private industry regarding complex urban and environmental problems. The certificate introduces the student to concepts in geography, cartography and database management, and the analysis of systems and processes using GIS.

Career Outlook

Completion of the GIS certificate prepares a student to obtain a position as a GIS technician. The Department of Labor predicts that job opportunities in this field are expected to increase 9 to 17 percent for all occupations through the year 2014. The widespread availability and use of advanced technologies, such as GPS, GIS, and remote sensing continues to increase both the accuracy and productivity of these workers. Opportunities for technicians should be available in basic GIS-related data-entry work.

This certificate is appropriate for students with advanced degrees that are looking for specific technical training.

Program Outcomes

Upon completion of the Geographic Information Systems Certificate, students are able to:

- Describe the concepts of geography, cartography and database management, map spatial attributes, and analyze systems and processes using GIS.
- Be prepared to work with environmental consulting companies, facilities management offices, and county, municipal, and town departments, such as a town planning department.