ENVIRONMENTAL TECHNOLOGY

2009 – 2010

11 Months

Credits Required for Graduation: 39.5

20 Months

Associate of Applied Science (A.A.S.) Degree

Credits Required for Graduation: 73

Our Future Depends on Environmental Technology

Environmental Technology is vital to our future. Environmental technicians work to ensure that our natural resources are protected and that the chemicals and fuels entering our environment are monitored. Graduates of this program will analyze and test the quality of our surface and ground water, soil, air, and fuel.

And There's Plenty of Variety

Technicians may work inside a lab or out in the field collecting, testing, and analyzing natural resources or manufactured products. This is a great career path for a person who cares about the environment, is detail-oriented, excels in science, and likes variety in the workplace.

Technicians' duties include:

- Making solutions and reagents
- Assisting in environmental management and quality assurance
- Participating in research and development
- Utilizing various instruments, preparing, collecting and analyzing samples
- Assessing data
- Performing microbiologic and molecular testing.

A Hands-on education

Students in the environmental technology program are trained to use the newest testing and monitoring technology available. Students also learn proper sampling and record keeping procedures through hands-on lessons, experiments and projects that take place both in and out of the classroom. Along with classroom and field experience, students in this program have the opportunity to participate in an internship, where they receive vital on-the-job training that will further prepare them for the workforce.

Employment Opportunities

The Bureau of Labor Statistics includes research and testing as one of the top ten professions with the fastest-growing employment opportunities. Students graduating from this program most likely will be able to choose from a number of job opportunities.

Environmental technicians may perform field and lab work for local, state, and federal governments dealing with water, soil and indoor and outdoor air quality. Others may perform tests on soil and water quality for agriculture and other research firms.

Most recently, graduates of this program have found cutting-edge jobs with alternative fuel plants like ethanol plants, where they test the plant's product to ensure all stages of production are working properly.

Completion of this program also can prepare students for transfer into an environmental management program at a 4-year institution.

Recommended Background Courses

Although not required, the following courses would be beneficial to this course of study prior to attending Lake Area Technical Institute: Science, Chemistry, Algebra, Biology, Computer, English.

COURSE DESCRIPTIONS

AC 100 – Applied Communications (.5 credit) Covers the specific techniques and tools needed to prepare for your job search.

AED 100 – Automated External Defibrillator (.5 credit) To prepare individuals in the workplace to provide care for breathing emergencies, perform cardiopulmonary resuscitation (CPR), and use an automated external defibrillator (AED) for victims of sudden cardiac arrest.

CHEM 106 – Inorganic Chemistry Lecture (3 credits) and CHEM 107 – Inorganic Chemistry Lab (1 credit) This course is an introductory course designed to give the student a positive understanding and appreciation of the chemistry in their lives. Basic inorganic topics such as the study of atoms and molecules, chemical reactions, chemical equilibrium, states of matter and nuclear processes will be covered.

CHEM 108 – Organic Chemistry Lecture (3 credits) and CHEM 109 – Organic Chemistry Lab (1 credit) Course covers organic chemistry and biochemistry. An understanding of the basic concepts is a necessary precursor to the discussion of the more specific topic of biochemistry.

■ **CIS 102 – Windows Applications for Technicians (3 credits)** Using a Windows-based microcomputer and related software, you will gain an understanding and basic operational knowledge about the Windows XP operating system, Microsoft Office word processing, and spreadsheets, presentation software, and publishing software. You will demonstrate this knowledge by scoring at least 80% on assignments, related objective, and performance tests.

ENV 100 – Water Quality (3 credits) This course includes the study of basic water properties, characteristics, and pollution as the relate to ponds, lakes, rivers, and aquifer systems. Introduction to basic hydrology and hydrogeology effecting water quality issues.

ENV 102 – Introduction to Environmental Technology (2 credits) Includes the study of basic concepts and practices involved in environmental technology, as well as applying that knowledge in critical thinking and problem-solving.

ENV 105 – Instrumentation (1 credit) This course includes the study of common laboratory instrumentation used by technicians in related fields. Safety, use of microscopes, calculations, pH meters, scales, nephelometers, pipeting, titration, and other wet chemistry instrumentation, spectrophotometry, colorimeters, and an introduction to basic field testing kits.

ENV 110 – Soil Science (3 credits) This course will investigate soil and water interactions, soil classification; pollutions issues related to soils, and measures to prevent contamination both agricultural and industrial.

ENV 112 – Current Issues in Environment Technology (1 credit) An introduction to the processes and features that help shape and define our environment. Discussion of contemporary topics in ecology, hydrology, water/waste water management, and environmental assessments.

ENV 115 – Environmental Sampling and Monitoring (3 credits) Introductory course concerning scientific sampling techniques and the scientific documentation required.

ENV 120 – Internship I (5 credits) 300 hours – 7 weeks of training at a wastewater treatment facility, or in a water-quality monitoring laboratory, or in a field-service setting.

ENV 220 – Water and Wastewater Technology (3 credits) This course will discuss the development, design, and operation of public water treatment systems and pollution-control facilities.

HAZ 100 – Hazardous Materials Safety (.5 credit) Hazardous materials safety covers identifying types of hazardous material, demonstrating personal protective equipment, and identifying blood borne pathogens.

MICRO 231 – General Microbiology (4 credits) Study of microorganisms emphasizing structure, metabolism, disease, disease prevention and cure, immune systems and microbial ecology.

Additional Course Required for the Associate of Applied Science Degree

ENV 203 – Ecology (3 credits) Discussion of ecology, land-use management, biodiversity and wildlife conservation, as well as related economics, policy, planning, and administration.

ENV 204 – Geography (4 credits) This course will describe the spatial aspects of interactions between humans and the natural world and will develop an understanding of the dynamics of geology, meteorology, hydrology, biogeography, and geomorphology, as well as the ways which human societies conceptualize the environment.

ENV 207 – Permits and Grant Writing (1 credit) An introductory course of basic permits and grant writing currently used in government and industry related to environmental issues and projects.

ENV 209 – Statistics (1 credit) A study of descriptive and inferential statistics especially related to research problems and quality control/assurance in the laboratory.

ENV 210 – Environmental Analysis (3 credits) Collection and preservation of environmental samples, maintenance of detailed records, and interpretation of results derived from analysis. Also included: discussion of geologic and hydrologic factors controlling the occurrence movement and chemical quality of ground water.

ENV 230 – Internship II (5.5 credits) 360 hours (9 weeks) of training in advanced testing and control techniques at a treatment facility, or water-quality monitoring laboratory, or in a field-service setting.

ENV 240 – Capstone Project (1 credit) This is a self-study course. The student will utilize and demonstrate the educational and personal development they have received in the Environmental program. This will be accomplished through research, investigation, and study of a topic agreed upon by the student and instructor. A final presentation will be given.

■ Students who transfer in two credits in computer science will take CSC 101 – Computer Essentials for 1 credit.

To fulfill graduation requirements, students must select one course in each of the areas listed. Courses marked with an asterisk can be transferred directly to the university system under the terms of articulation agreements.

Behavioral Science Course
PSYC 100 – Psychology of Human Relations
PSYC 101 – General Psychology *

Communications Course (Choose Two)
COMM 101 – Contemporary Communication
ENGL 101 – Composition *
SPCM 101 – Fundamentals of Speech *

Mathematics Course
MATH 101 – Intermediate Algebra
MATH 102 – College Algebra *

Social Science Course
ECON 105 – Leadership in the Global Workplace
ECON 201 – Principles of Microeconomics I *
ECON 202 – Principles of Macroeconomics II *
SOC 100 – Introduction to Sociology *