

ENGINEERING TECHNOLOGY

Starting Fall 2024, Engineering Technology will be offered as the following degree options:

Civil Engineering Technology

Land Survey Technology

Students interested in Engineering transfer will find information here.

Overview

Degrees Offered: AAS

Program Begins: Fall

Delivery Method: On Campus

Phone: 701-224-5651 • 800-852-5685

Email: bsc.aeat@bismarckstate.edu

Description

The Engineering Technology program at BSC prepares students for immediate employment as surveying technicians, engineering technicians, CAD technicians, materials testing technicians, or related entry level technician positions in engineering and construction related industries. Lecture courses in surveying technique and principles and practices of land surveying prepare students for opportunities within the surveying profession, and our industry-sponsored surveying laboratory provides students with a broad range of traditional and modern surveying equipment. Computer aided design (CAD) and Global Information Systems (GIS) courses prepare students to use modern hardware and software to produce 2-D and 3-D drawings, models, maps, and plans. Lecture and hands-on laboratory courses in materials testing give students the opportunity to learn industry standard field and laboratory testing procedures of construction related materials. Related coursework introduces students to fundamentals and computation techniques of water and wastewater treatment, elementary structural analysis, project development, and construction management. Additional courses in technical writing, communications, mathematics, and psychology complete the curriculum.

Students will benefit from many recent updates to the facilities and equipment used in the Engineering Technology program. Lecture courses and CAD courses are located in newer classroom and laboratory areas in the NECE building. Surveying labs use modern equipment including total stations, robotic/spatial total stations, GPS survey receivers, scanners, and data collectors. Hands-on structural analysis and material testing labs are held in a new fully equipped laboratory facility in the Armory.

For students interested in surveying as a profession, the Engineering Technology program meets the ND State Board of Registration for Professional Engineers and Land Surveyors board-approved educational requirements for individuals pursuing "Land Surveyor Intern" status in North Dakota.

Transfer Option

Those who may pursue a four-year engineering degree at a later date should consider course modifications in consultation with the Engineering Technology program coordinator.

GIS Certificate Option

By adding two more courses, students can complete a GIS Certificate of Completion. Refer to Geographic Information Systems Technician for complete details on the certificate of completion.

Preparation

Engineering technicians do the hands-on work related to engineering and/or construction. Incoming or potential students should have an interest in mathematics, computers, technology and construction.

Program Requirements

Students who complete the program requirements earn an Associate in Applied Science degree.

Enrollees should be able to perform laboratory exercises inside or outside during the school year and be able to lift light equipment and material loads.

As indicated in the curriculum, MATH 107 (Pre-Calculus) is taken the first semester of freshman year. Students not prepared to start MATH 107 may require additional courses and/or time to complete the degree.

Although there are computer labs on campus for instructional and lab use, students may wish to own or have access to a personal computer. For many of the program courses, students can access full or academic versions of the software used in class for little to no cost from the software companies. However, students should be aware that personal computers used for this purpose should be Windows based and have sufficient speed and storage capacity since the software used is very hardware intensive. Recommended minimum computer hardware requirements for students using personal computers can be found on BSC's website.



This program receives funding from the U.S. Department of Labor; therefore, veterans and eligible spouses receive priority of service over non-covered persons. (20 CFR 1010)

Career Opportunities

The Engineering Technology program prepares graduates for immediate employment as surveying technicians, engineering technicians, CAD technicians, and materials testing technicians in a high demand employment sector. Potential employers include federal, state, county, or local governments; surveying firms; engineering firms; testing firms; utilities; mining and power companies; and construction firms.

Degree Plans

- Engineering Technology Associate in Applied Science

Program Learning Outcomes

Upon graduation, Engineering Technology students will be able to:

- Utilize principles, hardware, and software to produce drawings, reports, quantity estimates, and other documents related to civil engineering and related disciplines.
- Conduct standardized field and laboratory tests related to civil engineering and construction.
- Utilize individual or collaborative surveying methods appropriate for land measurement and/or construction layout.
- Apply fundamental computational methods and elementary analytical techniques in the analysis and design of components and processes of sub-disciplines related to civil engineering.
- Function effectively as a member of a technical team.