



BSC

**Bismarck
State
College**

*A national
model for
innovative
education
and
workforce
training*

Instrumentation and Control Technology

Automation has increased industrial productivity and the need for highly trained instrumentation and control technicians to maintain automated systems. The viability of many of the state's energy and manufacturing industries depends on a supply of educated technicians to operate the increasingly complicated machinery and computerized controls. This two-year program at BSC, the only one offered in the North Dakota University System, was requested by managers of regional energy plants to meet the need for skilled technicians. Classes begin in fall 2008.

BSC's two-year program combines theory and hands-on training with state-of-the-art instruments and actual working processes and computer simulations. Students apply math and physics concepts to realistic conditions and industry standards that technicians will experience on the job. Lab experiences develop practical skills that complement classroom theory. Students complete their first year studying electronics within the Electronics/Telecommunications program as a requirement of the Instrumentation and Control program. Second year curriculum includes mechanical practices, measurement, process control theory, automation, and mastering control techniques with simulation equipment.

Students will learn to install, test, calibrate and maintain instruments that measure, indicate, and control variables such as pressure, flow, level, density, temperature, force, vibration and chemical composition. Other instruction includes how to update system documentation and build or modify specialized systems to solve problems in measurement and control.

A \$250 program fee per semester is assessed to defray high cost of equipment and supplies for this new program. Students can acquire individual certification through the Instrumentation, Systems and Automation Society. Instrumentation and Control Technology is a limited enrollment program that

offers graduates a diploma or associate degree. Graduates enter the workforce job ready.

◆ APTITUDE/PREPARATION

Instrumentation and control technicians need mechanical aptitude and the ability to solve problems intuitively. Some knowledge of electricity is helpful. Good interpersonal skills are an asset. Most technicians work at least a 40-hour week, plus overtime or irregular hours during peak seasons.

MANUFACTURING CAREER CLUSTER

Suggested high school courses:

- Algebra
- Communications
- Composition
- Computers
- Electronics
- Physics

◆ GRADUATION

Students completing the suggested curriculum receive an Associate in Applied Science degree or a Diploma. The AAS requires 15 credits of general education courses. Those in the Diploma option need 9 general education credits. Students earning the AAS degree must complete 76 semester hours with a minimum grade point of 2.0.

◆ CAREERS

Instrumentation and control technicians serve as liaisons between the professional and skilled worker. They apply scientific and theoretical principles and trade skills as they design, test and service products and equipment. Technicians work in power or process energy plants, and manufacturing and production industries where automated systems are used. Students may find work in chemical production, water treatment facilities, appliance and medical equipment manufacturing, and in aerospace, biomedical, food processing, petroleum refining, and other industries. Graduates are prepared for entry-level positions. Some technicians advance to positions as supervisors or managers.

BSC has a Counseling and Career Services office to help students find employment. Instructors also

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maintain contacts with local and regional employers to help graduates find job openings.

◆ EMPLOYMENT

In North Dakota, significant growth is predicted in industrial technology occupations, according to Job Service North Dakota. Production, manufacturing and engineering related occupations are projected to grow 14 to 16 percent, with instrumentation technicians achieving a 12.8 percent job growth. Salaries in North Dakota start at \$32,300 with typical wages at \$47,800 (Job Service North Dakota).

The U.S. Bureau of Labor Statistics says opportunities are expected to be very good for people interested in becoming power plant operators, distributors, and dispatchers. Employment in water and wastewater treatment plants is expected to grow by 14 percent between 2006 and 2016, faster than the average for all occupations. Prospects should be especially good for people with computer skills and a basic understanding of science and mathematics. Candidates with strong computer and technical skills are generally preferred.

◆ FACULTY

For information about the Instrumentation and Control Technology program, contact Robert Arso, Industrial Technology Department chairman, at 701-224-5416, or R.Arso@bsc.nodak.edu.

◆ ADMISSION TO BSC

Submit the following information:

- Pay the \$35 non-refundable application fee.
- Complete BSC Admissions Application. (Apply online at bismarckstate.edu and click on CampusConnection.)
- Have your high school send an official copy of your transcript. If you are still in high school, have your transcripts sent after you graduate. If you completed the GED exam, have a copy of results sent to BSC.
- Have colleges you previously attended send one official copy of your transcript. If you are currently attending college, have an "in progress" transcript sent from the college to BSC.
- Provide verification of immunity to measles, mumps, and rubella. Two separate doses that are more than one month apart are required. Students born prior to 1/1/57 are exempt.
- Assessment: If you are under 25, you must submit ACT test results. If you are 25 or older, you must take the COMPASS assessment.

◆ FINANCIAL AID

Financial aid programs are available. These programs include grants, loans, tuition waivers, and part-time employment. March 15 is the priority deadline to apply for these programs.

BSC Foundation Scholarships

The Bismarck State College Foundation awards scholarships to students of outstanding ability in these areas: academic achievement, performing arts, visual arts, journalism, and in several other disciplines.

◆ HOW TO REACH US

Application information:

1-800-445-5073 or

1-701-224-5429

Financial Aid:

1-701-224-5494

BSC Foundation Scholarships:

1-701-224-5730

bismarckstate.edu/scholarships

BSC Web site:

bismarckstate.edu