INSTRUMENTATION AND CONTROL TECHNOLOGY

Overview

Degrees Offered: AAS, Program Certificate
Limited Enrollment: Yes
Program Begins: Fall
Delivery Method: Online, On Campus
Phone: 701-224-5651 • 800-852-5685
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Description

The Instrumentation & Control Technology program at BSC combines theory and hands-on training with state-of-the-art instruments, working processes and computerized control systems. Students learn to install, test, calibrate and maintain instruments that measure and control variables such as pressure, flow, level, density, temperature, force, vibration and chemical composition. Students apply math and physics concepts and industry standards to realistic situations encountered on the job. Additional instruction includes updating system documentation and building or modifying specialized systems to solve problems in measurement and control.

A limited number of students will be accepted to both the online and on campus programs in the Fall. Online degree seeking students are required to complete third and fourth semester program labs on-campus during the summer. Summer labs are made available at a minimum cadence of every two years, though may be offered more often if there is sufficient demand. Online students employed in facilities where they have access to I&C facilities may have the option to complete the labs remotely. Certificate students are not required to complete third and fourth semester labs and may complete the program entirely online.

Students with a Journeyman Electrician License, or at least 28 college credits from an accredited electrician program, may qualify to move directly into the 2nd year of the program (I&C coursework).

Preparation

Instrumentation & Control technicians need mechanical aptitude and the ability to solve problems intuitively. Some knowledge of electricity is helpful. Students benefit from a background in high school algebra, physics and basic computer literacy, plus good reading and interpersonal skills.

Prospective students should be prepared to meet the physical requirements of work in this field. Fear of heights or color blindness may limit the graduate's employment opportunities. The duties of an instrument technician may involve working rotating shifts, but this is not typical. Most industrial facilities require entry-level applicants to pass a physical and drug test.

Computer Requirements

All BSC courses use a Learning Management System (LMS) called Blackboard. Chromebooks, Chrome OS devices, iPads, and mobile devices (iOS, Android phones, tablets) do not allow students to satisfactorily access and complete course content.

Please refer to the Computer Specifications for BSC students.

Program Requirements

Students who complete the curriculum requirements earn an Associate in Applied Science degree or a Program Certificate (see degree plan options). Students who complete the Program Certificate may return for additional coursework that leads to an Associate in Applied Science degree.

Program Pathways

Credits from the Instrumentation and Control Technology Associate in Applied Science degree may stack into the following Bachelor of Applied Science degrees:

- Energy Management
- Operations Management
- Mechatronics Engineering Technology

Career Opportunities

The program is intense and directly applicable to the job market. Graduates are prepared for entry-level jobs in electrical generation facilities (power plants, etc.), refining (oil, ethanol, chemical processing, etc.), water treatment, food processing and manufacturing facilities.

Additional Information

Credits from this program may be applied to BSC's Bachelor of Applied Science degree (BAS) in Energy Management, offered entirely online. The BAS is designed for individuals interested in supervisory and management positions in the energy industry. The BAS builds on the foundation laid in an AAS degree and includes general education classes, core management courses, and energy specific management courses.

BSC's National Energy Center of Excellence was designated as the National Power Plant Operations Technology and Education Center by U.S. Energy Secretary Samuel W. Bodman in 2007. This official designation recognizes BSC as the premier national center of education and training for operators and technicians in the energy industry.

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)

Degree Plans

- Instrumentation and Control Technology Associate in Applied Science
- Instrumentation and Control Technology Program Certificate

Program Learning Outcomes

Upon graduation, Instrumentation and Control Technology students will be able to:

- Demonstrate the proper handling of materials used for instrument installation.
- Demonstrate the appropriate practices relating to process theory, drawing and fundamentals.
- Demonstrate proper handling and installation of input devices, output devices and function of control loops.
- Demonstrate the appropriate practices relating to motor theory, power circuits and control circuits.
- Demonstrate the appropriate practices relating to control systems including logic, processing and networks.
- Demonstrate the appropriate practices relating to process control technologies.