

HEATING, VENTILATION AND AIR CONDITIONING

Overview

Degrees Offered: AAS, Diploma, Program Certificate

Limited Enrollment: Yes

Program Begins: Fall

Delivery Method: On Campus

Phone: 701-224-2429

Email: bsc.cet@bismarckstate.edu

Description

The Heating, Ventilation and Air Conditioning (HVAC) program equips students in the newest technology for this rapidly expanding field. In this program, students will work in the modern, well-equipped lab, and master installation and repair procedures, learn the use and care of basic tools and equipment and how to operate by EPA and safety standards set by OSHA regulations. Instruction includes HVAC components, systems, troubleshooting, domestic and light commercial refrigeration¹, and sheet metal².

Admission occurs in the Fall. Spring admission may be possible based on availability.

1. Students will take the Environmental Protection Agency's refrigerant use exam, required for anyone working with refrigerants.
2. Sheet metal is an integral part of the air conditioning and heating industry. Bismarck State College is a nationally registered training center for sheet metal and HVAC through the National Center for Construction Education and Research (NCCER). Students are placed on a national registry after successfully completing individual module exams and related tasks.

Preparation

Background in these areas is recommended: basic algebra and geometry, physical science, computer technology, basic knowledge of drafting, and working knowledge of a scientific calculator. Some knowledge of plumbing or electricity is helpful. Students should be physically fit and able to lift and move heavy equipment.

Awareness of these HVAC industry standards may help students determine suitability for this career:

- Must have the ability to perform close accurate work, communicate effectively with others, present information in a clear concise manner, and follow verbal and written instructions.
- Requires good finger dexterity, good vision and hearing.
- Requires continuous walking, frequent standing, bending, stooping, climbing ladders and stairs, kneeling, lifting and carrying up to 50 pounds, and carrying long or oversized loads.
- Frequently requires working over your head.
- Requires continuous use of hand tools and frequent use of power tools.
- Frequently exposed to noise, dirt, dust, fumes, chemicals, extreme heat and cold, vibration, and confined areas.

Requirements

Students who complete the curriculum requirements earn a Program Certificate in HVAC. Additional coursework may lead to a Diploma or Associate in Applied Science degree.

Special Costs

Students must have the specified tool kit and drafting kit the first week of class.

Career Opportunities

According to the U.S. Bureau of Labor Statistics, over the next 6 to 10 years the Heating, Ventilation, Air Conditioning, and Refrigeration (HVACR) field is expected to be one of the fastest growing fields in the United States. Graduates can expect to find positions in service, installation, sales, building maintenance, controls and testing and balancing. Positions also are available in marketing, controls, bidding and estimating. After gaining experience in the field, some graduates can move into positions as foremen, supervisors, or teachers. Others will open their own contracting business.

Degree Plans

- Heating, Ventilation and Air Conditioning Associate in Applied Science
- Heating, Ventilation and Air Conditioning Diploma
- Heating, Ventilation and Air Conditioning Program Certificate

Program Learning Outcomes

Upon graduation, Heating, Ventilation and Air Conditioning students will be able to:

- Work safely and efficiently in the Heating, Ventilation and Air Conditioning field.
- Be able to read, interpret, and understand literature essential for HVAC installations and equipment.
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- Establish efficiency in duct fabrication.
- Establish proficiency in the act of installing ductwork and the subsequent systems in HVAC as it pertains to system efficiency.
- Comply with industry/local codes, and adhere to EPA regulations as it pertains to refrigerant certification and proper handling.
- Isolate, diagnose and repair electrical and mechanical problems in HVAC systems and components.
- Demonstrate the ability to explain standard operation of systems and necessary repairs.
- Demonstrate proficiency in piping practices and the principles in such.