HEATING, VENTILATION, AIR CONDITIONING AND REFRIGERATION

College of DuPage

HEATING, VENTILATION, AIR CONDITIONING AND REFRIGERATION

When your climate control system breaks down, it is not only an inconvenience—it can be dangerous or even deadly when the temperature drops below or rises above safe levels. Whether for routine maintenance or more serious problems, we depend on HVACR technicians to ensure that the places we live, work, learn, meet, play, heal, shop, eat and worship are comfortable, healthy and safe. Though sometimes subject to seasonal fluctuations, jobs in this industry tend to be recession-proof, as businesses and homeowners depend on their climate-control or refrigeration systems and must keep them in good working order, regardless of economic conditions. In addition, with more and more attention being directed to improving indoor air quality, energy efficiency and pollution reduction, there will be excellent career opportunities for well-trained professionals in HVACR.

The HVACR program at College of DuPage provides a general technical background, and also allows for specialization in many areas of the industry. Students learn about refrigeration, air conditioning and heating, electrical circuitry, control equipment and system design, as well as troubleshooting and equipment installation. Degree and certificate options are designed to prepare students for a variety of positions such as technicians and mechanics, installers and stationary operators, as well as managers, contractors and HVACR business owners. With proper planning, students can continue their education at a baccalaureate-granting institution pursuing degrees that include mechanical or electrical engineering.

For a complete list of courses in this program visit:
cod.edu/catalog

WHY COLLEGE OF DuPAGE IS RIGHT FOR YOU

Whether you are preparing for a career in HVACR, planning to transfer to a four-year baccalaureate-granting institution, or updating your skills, College of DuPage has the right program for you. We offer:

- Dedicated instructors with years of practical industry experience, certification, and licensing.
- Instruction in top-notch facilities and on cutting-edge equipment.
- Flexible schedules with day, evening, and online learning.
- Practical, hands-on experience as well as classroom-based studies.
- Affordable programs that get you on the fast track to success without breaking the bank.
- Affiliations with many industry and trade associations such as ASHRAE, the Air Conditioning Contractors of America (ACCA), Refrigeration Service Engineers Society (RSES), as well as local unions ensure that the students gain knowledge and skills that are relevant and in demand by today's employers.

ASSOCIATE IN APPLIED SCIENCE (A.A.S.) IN HVACR

The HVACR program provides training in a wide variety of skill areas that prepare students for employment in the heating, air conditioning and refrigeration industry. The three degree options in this program are Facility Maintenance Mechanic, Contractor, and HVACR Service Technician.

Facility Maintenance Mechanic

This degree prepares students for a career in facility maintenance. It emphasizes both commercial and industrial HVACR to allow students to create their own career pathways. Students are required to complete a minimum of 64 credits of coursework, which includes 31 credits in core required classes, 18 to 22 credits in required general education classes, and 15 credits in program electives.

Contractor

The Contractor A.A.S. degree program combines technical training with management skills that prepare students to own or manage a HVACR company. The curriculum includes residential air conditioning, control systems, duct design, load calculation, residential air conditioning, system troubleshooting medium- and low-temperature refrigeration, as well as business, contracting and management classes. Students are required to complete 64 to 68 credits of coursework, which includes 46 credits in core required classes, and 18 to 22 credits in general education classes.

HVACR Service Technician

The HVACR Service Technician A.A.S. degree program provides training in current technology for installing, maintaining, troubleshooting and repairing heating, air conditioning and refrigeration energy systems. The curriculum covers commercial and residential air conditioning, control systems, duct design, equipment and safety, heating, hydronics, load calculation, materials and refrigeration. Students are required to complete 64 to 68 credits of coursework, which includes 33 credits in core required classes, 18 to 22 credits in general education classes, and 13 credits in program electives.

“Every one of the teachers are very knowledgeable and have such a huge drive to help students succeed. Plus, the lab has different kinds of technology and different ways to apply yourself.”
~Molly Brown

CERTIFICATES IN HVACR

The HVACR program offers four certificates designed for students to train for entry-level positions and working professionals to upgrade skills. The certificate options are Energy and Audit Analysis, HVACR Service Technician, Building Automation Systems (BAS) and Stationary Operator.

Additional HVACR elective courses are highly suggested as a way to gain additional exposure to advanced and emerging technologies, learn about systems not included in the required classes, and gain advantages over stiff competition in the job market.

Energy Audit and Analysis

The Energy Audit and Analysis certificate is designed for HVACR and building inspection contractors to expand their services to include residential and light commercial energy audits and additional related services. Students are required to complete 10 credit hours in classes covering energy audits and economics, duct design, HVACR contracting, and load calculations.

HVACR Service Technician
HVACR Service Technician certificate prepares students for entry-level positions as installers and service technicians of HVACR equipment. Students are required to complete 33 credits in classes covering commercial and residential air conditioning, control systems, equipment and safety, heating, materials, refrigeration, sheet metal and troubleshooting.

Building Automation Systems (BAS)
This certificate prepares students for a growing field that merges traditional heating, ventilation, air conditioning and refrigeration knowledge with computer and IT skills. The BAS certificate consists of 37 credits that encompass Heating Principles, Building Automation Systems Object-Oriented Programming (both I and II), Building Commissioning, Building Automation Systems Solutions, and Building Automation Systems Integration with Open Protocols.

Stationary Operator
The Stationary Operator certificate prepares students for jobs as stationary machine operators and building maintenance personnel. Students are required to complete 31 credits in classes covering central cooling and heating plants, commercial air conditioning, control systems, hydronics, refrigeration and system balancing.

STATE-OF-THE-ART FACILITIES

The HVACR lab is built and maintained by students to reflect the most current technologies in the field: Building automation, steam, hydronics, chilled water, rooftops, electrical control and other related areas. The lab allows the students to connect actual systems that can exhibit a multitude of scenarios relevant to contemporary HVACR systems.

AVAILABLE SCHOLARSHIPS

Students who are planning to enroll in the HVACR program may be qualified to receive a financial award through a variety of supported scholarships.

- Edward R. Valintis Technology Scholarship
- Elmhurst Rotary Club Vocational/Technical Scholarship
- Flexible Steel Lacing Company Scholarship

Visit **cod.edu/scholarships** for requirements and a full list of available scholarships.

TRANSFER OPPORTUNITIES

The Illinois Articulation Initiative (IAI) facilitates the transfer of students from one Illinois institution to another. Both a general education core curriculum and a lower-division major recommendation course listing have been developed.

For more information on transfer opportunities at College of DuPage, visit: **cod.edu/academics/transfer_programs**

EMPLOYMENT OUTLOOK

The U.S. Bureau of Labor Statistics (BLS) reports that the median yearly wage for HVACR mechanics and installers was $45,910 in 2016, with top earners bringing in more than $73,350. Employment of HVACR mechanics and installers is expected to grow by 14 percent from 2014 to 2024. The BLS also reports that in 2016 the median annual wage for stationary engineers was $59,400, and for HVACR engineers was $84,190.

Rising demand for trained technicians will result in excellent employment opportunities. The growing emphasis on energy efficiency and pollution reduction, as well as the increasing emergence of sophisticated climate control systems will require more HVACR professionals as current systems are retrofitted, upgraded or replaced. For more information and employment statistics in the HVACR industry, visit **www.bls.gov**.

COMMON CAREERS FOR GRADUATES OF THE HVACR PROGRAM

- **HVACR Installers:** Install air conditioning, heating and ventilation systems in residences or commercial establishments.
- **HVACR Contractors:** Responsible for the installation of heating, air conditioning, refrigeration and ventilation systems.
- **HVACR Mechanics:** Maintain, troubleshoot and repair air conditioning, heating and ventilation systems in residences or commercial establishments.
- **HVACR Stationary Engineers:** Technicians who monitor and maintain complex building systems and equipment.
- **Home Appliance Technicians:** Install and repair household appliances, such as refrigerators, microwaves and washer/dryers.
- **HVACR Facility Maintenance Mechanics:** Control stationary engines, boilers or other mechanical equipment to provide utilities for buildings or for industrial purposes.

GETTING STARTED

If you are considering this program as an area of study:

- Visit our website at **cod.edu/programs/hvacr**
- Consult with a program coordinator or specialist:

Bob Clark, Program Coordinator
Technical Education Center (TEC), Room 1063
(630) 942-3068, clarkr@cod.edu

Bridget McFarland, Program Support Specialist
Technical Education Center (TEC), Room 1008
(630) 942-8419, mcfarl@cod.edu

Technology Advisor
Technical Education Center (TEC), Room 1047
(630) 942-2548

- Contact the Business and Technology Division Office
  Technical Education Center (TEC), Room 1034, (630) 942-2592

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For ADA accommodations, call (630) 942-2141 (voice) or (630) 858-9692 (TDD).
Please call two weeks in advance.

For individuals who need language assistance, please contact Campus Central at (630) 942-2380.

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