



Shaping Tomorrow's
Built Environment Today

Unlocking Your Future in HVAC&R Engineering

Welcome to the world of HVAC&R engineering, where comfort meets innovation! If you have a knack for problem-solving, a passion for sustainability, and a love for technology, then you're on the right path to an exciting career. Let's explore what it takes to become a part of this dynamic industry.

What is HVAC&R

HVAC&R stands for Heating, Ventilation, Air Conditioning, and Refrigeration. It's all about creating the perfect indoor environment, whether it's keeping buildings cool in the summer, warm in the winter, or ensuring air quality and energy efficiency.

High School Course Recommendations

To prepare for a career in HVAC&R engineering, here are some recommended high school/secondary school courses:

- **Mathematics:** Strong math skills are essential for engineering. Take courses in algebra, geometry, trigonometry, and calculus.
- **Science:** Physics and chemistry are fundamental to understanding the principles behind HVAC&R systems.
- **Technology:** Courses in computer science and technology will help you grasp the digital aspects of HVAC&R engineering.
- **Engineering and Design:** If available, courses in engineering or design will give you a head start in understanding the principles of engineering.
- **Environmental Studies:** Learn about sustainability and environmental science to understand the importance of energy efficiency and green building practices.

What to Expect in College/University

If you decide to pursue a degree in mechanical or architectural engineering with a focus on HVAC&R, you'll dive deeper into subjects like thermodynamics, fluid mechanics, heat transfer, and HVAC system design. Your coursework will involve both theoretical studies and hands-on projects where you'll apply what you've learned in real-world scenarios.



Career Opportunities

The HVAC&R industry offers a diverse range of career options:

- **HVAC Engineer:** Design, install, and maintain heating, ventilation, and air conditioning systems for buildings.
- **Refrigeration Engineer:** Specialize in the design and maintenance of refrigeration systems used in industries like food storage and transportation.
- **Energy Consultant:** Analyze energy usage in buildings and recommend strategies for improving efficiency.
- **Sustainability Specialist:** Focus on implementing green building practices and renewable energy systems.
- **Research and Development:** Work on developing new technologies and improving existing HVAC&R systems.



Why Choose HVAC&R Engineering?

- **Impact:** You'll contribute to creating comfortable, sustainable, and healthy indoor environments.
- **Innovation:** The field is constantly evolving with advancements in technology and energy efficiency.
- **Job Security:** Demand for skilled HVAC&R engineers is on the rise as the world focuses on sustainability and energy conservation.



As you embark on your journey towards a career in HVAC&R engineering, remember to stay curious, embrace challenges, and never stop learning. With the right education and passion, you can play a vital role in shaping the future of building comfort and environmental sustainability. So, are you ready to make a difference? Join us in the exciting world of HVAC&R engineering!

www.ashrae.org/ashraek12 | students@ashrae.org

