



# Air Conditioning

Certificate (39 SCH\*)

\*Semester Credit Hour 8/2020

## First Semester - 12 SCH

HART 1301 - Basic Electricity for HVAC  
HART 1303 - Air Conditioning Control Principles  
HART 1307 - Refrigeration Principles  
HART 1310 - HVAC Shop Practices and Tools

## Second Semester - 12 SCH

HART 1341 - Residential Air Conditioning  
HART 1345 - Gas and Electric Heating  
HART 2341 - Commercial Air Conditioning  
HART 2349 - Heat Pumps

## Third Semester - 15 SCH

HART 1356 - EPA Recovery Certification Preparation  
HART 2331 - Advanced Electricity for HVAC  
HART 2336 - Air Conditioning Troubleshooting  
HART 2338 - Air Conditioning Installation & Startup  
HART 2345 - Residential Air Conditioning Systems Design

## Marketable Skills

Math Skills; manage time and materials; acquire and evaluate information; interpret and communicate information; oral and written communications skills; computer skills; teamwork; cultural diversity; apply technology to work; creative thinking; decision making; problem solving; self-management; construction and industrial safety; EPA recovery and certification; Electricity for residential, commercial, and industrial HVAC equipment; electrical test instruments; electrical circuits; electrical components; schematic reading; HVAC and Refrigeration controls; electrical troubleshooting; refrigeration cycle, heat transfer, pressure-temperature relationship; troubleshooting air conditioning and refrigeration systems; refrigerant handling; refrigeration components; refrigeration tools and instruments; piping skills: soldering, flare joints, compression joints, fittings; installation of residential and commercial cooling and heating systems; service of residential and commercial cooling and heating systems; installation and service of residential and commercial refrigeration systems; installation, programming, service, and troubleshooting of Distributed Digital Control systems; heat load calculation and duct design.

## Program Outcomes

- Install, troubleshoot and repair refrigerators, freezers, and window air conditioners.
- Install, troubleshoot and repair split or package residential air conditioning systems, including electric furnaces, gas furnaces and heat pumps.
- Install, troubleshoot and repair split and package commercial air conditioning and refrigeration systems.
- Install, program, troubleshoot and repair residential, commercial and industrial Distributed Digital control systems.
- Become certified to handle CFC's, HCFC's, and HFC's.

## High School Endorsements

Business and Industry

## Additional Educational Opportunities

Associate of Applied Science in Air Conditioning

## Career Opportunities

Consulting; Controls technician; Customer service; Dispatcher/ Coordinator; Distributor; Distributor counter sales; Energy auditor; Equipment performance testing specialist; Estimator; Field technical specialist; Field supervisor; HVAC equipment dealer; IAQ inspector; Inside sales and outside sales; Installer; Product technical support; Project manager; Public relations; Purchasing; Sheet metal fabrication; Parts store manager; Technical training instructor; Shop maintenance; Service technician; Contractor.