

Air Conditioning Technician

One Year Program: Scope & Sequence

Semester 1

ARC103 - HVAC-R Fundamentals
(18 Weeks)

District Pre-Assessment

Unit 1 (45 Day)

Modern Refrigeration HVAC Excellence

- Professional Development: Careers & Certification, Safety, & Service Calls
- Refrigerant Systems Fundamentals: Energy & Matter, Gasses, & Basic Refrigeration Systems
- Service Basics: tools & Supplies, & Working with Tubing & Piping
- Refrigerants: Intro to Refrigerants, Equipment & Instruments for Servicing & Handling, & Working with Refrigerants

Certification: OSHA 10,

CTSO Integration (Leadership Skills): Officer Elections, Officer Training, Chapter Meeting

Professional Skills: 1A-D, 5A-E

Academic Standards: 1,1A,1B,1C,1D ELA.11-12.W.5 5.NF.B.3 5.NF.B.6 5.NF.B.7

Work-based Learning: 1st Interview, Resume, Practice Job Applications, Guest Speaker, Simulated Lab Experience.

Technical Standard: 1.0-11.0

Unit 2 (45 Days)

Modern Refrigeration HVAC Excellence

- Basic Electricity, Magnetism, & Electronics: Basic Electricity, Electrical Power, & Basic Electronics
- Motor & Electrical Control Systems: Electric Motors, Electrical Control Systems, Electrical Troubleshooting, & Servicing Electrical Motors
- Refrigeration System Components: Compressors, Compressor Safety Components, Metering Devices, Heat Exchangers, & Refrigerant Flow Components

CTSO Integration (Leadership Skills): Chapter Meeting, SkillsUSA Fall Leadership Conference, Community Service Project, Fundraiser Event

Professional Skills: 1.B 4.A -F 2A-C

Academic Standards: ELA.11-12.W.4 ELA.11-12.W.7

Work-based Learning: Construction Career Days, Resume Writing, Job Applications, Career Application Activities, Mock Service Calls, ARS Expo, Guest Speaker

Technical Standard: 12.0 - 23.0

Semester 2

ARC104 - HVAC-R Technician
(18 Weeks)

Unit 3 (45 Days)

Modern Refrigeration HVAC Excellence

- Indoor Air Fundamentals: Air Movement & Measurement, Air Quality, Air Distribution, & Ventilation System Service
- Air Conditioning Systems: Self-Contained Air-conditioning Systems, Residential Split Air-Conditioning Systems, Commercial Air-Conditioning Systems, Humidity Control, Thermostats, & Heating & Cooling Loads

Certification: EAP 609

CTSO Integration (Leadership Skills): SkillsUSA Regional Conference, Chapter Meeting, Community Service Project

Professional Skills: 3A-E, 9A-C,

Academic Standards: ELA.11-12.SL.4 ELA.11-12.W.5 7.G.B.4, 6.RP.A.3

Work-based Learning: Budgeting, Job Shadowing, Guest Speaker, Student Based Enterprise, Spring Preventive Maintenance, Guest Speaker, Simulated Lab Experience

Technical Standard: 27.0-33.0 & 35.0-37.0

Unit 4 (45 Days)

Modern Refrigeration HVAC Excellence

- Heating Systems: Heat Pumps, Gas Fired Heating Systems, & Electrical Heating Systems

Certification: EPA 608 & 410A Safety

CTSO Integration (Leadership Skills): SkillsUSA State & National Conferences, End of Year Banquet, Chapter Meeting

Professional Skills: 6A-C, 7A-C, 8A-I

Academic Standards: ELA.11-12.SL.4 ELA.11-12.RI.7

ELA.11-12.W.8 6.EE.A.2 7.EE.B.3 7.G.B.4 A-CED.A.1

Work-based Learning: Job Interviews, Guest Speakers, Simulated Lab Experience

Technical Standard: 38.0 - 43.0

District Post-Assessment

Common AZCCR Math Standards (CAMS)

English Language Arts Standards (ELAS)

Environmental Protection Agency (EPA)

Occupational Safety and Health Administration (OSHA)

Modern Refrigeration and Air Conditioning