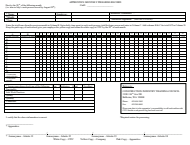
HVAC

HVAC (Heating, Ventilation and Air-Conditioning) systems technicians work on residential and commercial buildings installing and maintaining electrical, gas and oil heating and air-conditioning systems. Rapidly increasing technology in HVAC work requires employers to seek well trained employees from technical school training or apprenticeship programs. CITC's four-year program has been designed by highly qualified subject matter experts with this in mind. CITC classes present theoretical and practical skills essential to your success as an HVAC installer or technician.

Note: CITC is transitioning from requiring paper NCCER Carpentry textbooks and NCCERConnect. Carpentry students are now required to purchase NCCERConnect only. NCCERConnect, which includes access to an e-text, will become the primary text materials for class and will be utilized for class and homework assignments. Students will be required to purchase an access code to NCCERConnect on the 1st day of class.

It is a requirement of CITC students to own or have access to a laptop or tablet computer with video, audio, camera, microphone, and wireless network access. Personal student laptop or tablet computer devices will be required in class each day. Additionally, all students will need to have access to a reliable internet source when classes begin in the fall. For additional information on the technical requirements for please contact the CITC office at (425) 454-2482.

APPRENTICESHIP MONTHLY **WORK LOGS**



Apprenticeship monthly work logs can be submitted to the apprenticeship department via email: **worklogs@citcwa.org**; fax: **(425) 289-0085** (this fax number does not receive texts); mail to the CITC main office: **1930 116th Ave NE Bellevue, WA 98004**.

HVAC LEVEL 1

Minimum: 201 hours per year

HVAC 101: FALL QUARTER

Students will thoroughly review construction site safety and shop safety and are introduced to trade mathematics; safe use of basic hand and power tools; blueprint reading; rigging and HVAC tools. Includes OSHA 10 training. Lab date schedule will be provided at the beginning of the quarter. Scheduled dates may be adjusted at instructor's discretion.

HVAC 102: WINTER QUARTER

Students will learn HVAC related trade math; basic electricity for HVAC and are introduced to cooling and heating principles, air distribution systems skills. Lab date schedule will be provided at the beginning of the quarter. Scheduled dates may be adjusted at instructor's discretion.

HVAC 103: SPRING QUARTER

Students will be introduced to basic copper and plastic piping practices; and basic carbon steel piping practices; soldering and brazing; and will review related 2020 NEC Code Sections and Washington Amendments. Lab date schedule will be provided at the beginning of the quarter. Scheduled dates may be adjusted at instructor's discretion.

BOOKS - HVAC LEVEL 1		
It is the student's responsibility to have the following book(s) on the first night of class:		
REQUIRED TEXT	**Soft Cover ISBN**	**Hard Cover ISBN**
NCCER Core Curriculum Trainee Guide, 6th Edition, NCCERConnect 2.0 with eText	**Purchase NCCERConnect through** https://registration.mypearson.com/	
NCCER HVAC Level 1 Trainee Guide, 5th Edition, NCCERConnect 2.0 with eText	**Purchase NCCERConnect through** https://registration.mypearson.com/	
Modern Refrigeration & Air Conditioning Textbook, 20th Ed. Bundle - Textbook, Workbook, and lab manual	978-1-64564-718-8	
2020 National Electric Code (NEC)	978-1-4559-2297-0	
Washington State Electrical RCW/WACs	Free download available through L&I	
OPTIONAL TEXT		
NCCER Core Curriculum Trainee Guide, 6th Edition	9780137483341	9780137483358
NCCER HVAC Level 1 Trainee Guide, 5th Edition	978-0-13-518509-4	

*Purchase NCCERConnect through **https://registration.mypearson.com/**

HVAC LEVEL 2

Minimum: 201 hours per year

HVAC 201: FALL QUARTER

Students will learn about alternating current, transformers and motors used in HVAC; compressors, refrigerants and oils; leak detection, evacuation, recovery and charging. Lab date schedule will be provided at the beginning of the quarter. Scheduled dates may be adjusted at instructor's discretion.

HVAC 202: WINTER QUARTER

Students will learn about metering devices, heat pumps, basic maintenance. Students will also learn components of 2017 NEC and WAC rules related to HVAC; review green building practices; and will complete a review to prepare for the EPA exam. Lab date schedule will be provided at the beginning of the quarter. Scheduled dates may be adjusted at instructor's discretion.

HVAC 203: SPRING QUARTER

Students will learn about chimneys, vents and flues; sheet metal duct systems; fiberglass and fabric duct systems; commercial airside systems; air quality equipment and will be introduced to hydronic systems. Lab date schedule will be provided at the beginning of the quarter. Scheduled dates may be adjusted at instructor's discretion.

BOOKS - HVAC LEVEL 2		
It is the student's responsibility to have the following book(s) on the first night of class:		
REQUIRED TEXT	**Soft Cover ISBN**	**Hard Cover ISBN**
NCCER HVAC Level 2 Trainee Guide, 5th Edition, NCCERConnect 2.0 with eText	**Purchase NCCERConnect through** https://registration.mypearson.com/	
Modern Refrigeration & Air Conditioning Textbook, 20th Ed. Bundle - Textbook, Workbook, and lab manual	978-1-63126-357-6	
2020 National Electric Code (NEC)	978-1-4559-2297-0	
Washington State Electrical RCW/WACs	Free download available through L&I	
OPTIONAL TEXT		
NCCER HVAC Level 2 Trainee Guide, 5th Edition	978-0-13-518512-4	

*Purchase NCCERConnect through **https://registration.mypearson.com/**

HVAC LEVEL 3

Minimum: 201 hours per year

HVAC 301: FALL QUARTER

Students will learn about refrigerants and oils; compressors; metering devices; and retail refrigeration systems. Lab date schedule will be provided at the beginning of the quarter. Scheduled dates may be adjusted at instructor's discretion.

HVAC 302: WINTER QUARTER

Students will learn about commercial hydronic systems; steam systems; planned maintenance; and water treatment practices. Lab date schedule will be provided at the beginning of the quarter. Scheduled dates may be adjusted at instructor's discretion.

HVAC 303: SPRING QUARTER

Students will learn about troubleshooting electronic controls; troubleshooting oil heating; troubleshooting heat pumps; and troubleshooting accessories. Lab date schedule will be provided at the beginning of the quarter. Scheduled dates may be adjusted at instructor's discretion.

BOOKS - HVAC LEVEL 3		
It is the student's responsibility to have the following book(s) on the first night of class:		
REQUIRED TEXT	**Soft Cover ISBN**	**Hard Cover ISBN**
NCCER HVAC Level 3 Trainee Guide, 5th Edition, NCCERConnect 2.0 with eText	**Purchase NCCERConnect through** https://registration.mypearson.com/	
Modern Refrigeration & Air Conditioning Textbook, 20th Ed. Bundle - Textbook, Workbook, and lab manual	978-1-63126-357-6	
2020 National Electric Code (NEC)	978-1-4559-2297-0	
Washington State Electrical RCW/WACs	Free download available through L&I	
OPTIONAL TEXT		
NCCER HVAC Level 3 Trainee Guide, 5th Edition	978-0-13-518510-0	

*Purchase NCCERConnect through **https://registration.mypearson.com/**

HVAC LEVEL 4

Minimum: 201 hours per year

HVAC 401: FALL QUARTER

Students will learn about; water treatment; indoor air quality; energy conservation equipment and related 2017 NEC Code and WA Amendments related to HVAC. Lab date schedule will be provided at the beginning of the quarter. Scheduled dates may be adjusted at instructor's discretion.

HVAC 402: WINTER QUARTER

Students will learn about building management systems; system air balancing; systems start-up and shut down; construction drawings and specifications. Lab date schedule will be provided at the beginning of the quarter. Scheduled dates may be adjusted at instructor's discretion.

HVAC 403: SPRING QUARTER

Students will learn about; heating & cooling system design; commercial and industrial refrigeration systems, alternative heating and cooling systems and are introduced to supervisory skills. Lab date schedule will be provided at the beginning of the quarter. Scheduled dates may be adjusted at instructor's discretion.

BOOKS - HVAC LEVEL 4		
It is the student's responsibility to have the following book(s) on the first night of class:		
REQUIRED TEXT	**Soft Cover ISBN**	**Hard Cover ISBN**
NCCER HVAC Level 4 Trainee Guide, 5th Edition, NCCERConnect 2.0 with eText	**Purchase NCCERConnect through** https://registration.mypearson.com/	
Modern Refrigeration & Air Conditioning Textbook, 20th Ed. Bundle - Textbook, Workbook, and lab manual	978-1-63126-357-6	
2020 National Electric Code (NEC)	978-1-4559-2297-0	
Washington State Electrical RCW/WACs	Free download available through L&I	
OPTIONAL TEXT		
2020 Key Word Index by Tom Henry	9781733462143	
NCCER HVAC Level 4 Trainee Guide, 5th Edition	978-0-13-518506-3	

*Purchase NCCERConnect through **https://registration.mypearson.com/**

HVAC Instructors

As a part of our dedication and commitment to training, we take pride in delivering top quality instructors. CITC's instructors are highly skilled journey-level workers who bring their knowledge and years of trade experience into the classroom. All CITC instructors have been certified by the National Center for Construction Education and Research.

Peter Chartrand is a graduate of CITC. Pete started in the trades in 1992 as a CITC Apprentice and was the HVAC student of the year in 1997. Pete became a CITC faculty member in 2007. CITC Instructor of the Year in 2021-2022.

David Norman started in the trades in 1979 and became a CITC faculty member in 1991. CITC instructor of the Year 1997-1998.

HVAC Schedule & Tuition

Western Washington Region

HVAC LEVEL 1								
Bellevue	101	Fall	14 weeks	87 hours	Fri/Sat	8a-5p	September 9 – December 10 *+ Assignments*	Tuition: $1,750
Bellevue	102	Wtr	9 weeks	63 hours	Fri/Sat	8a-5p	January 13 – March 11 *+ Assignments*	Tuition: $1,750
Bellevue	103	Spr	8 weeks	51 hours	Fri/Sat	8a-5p	April 14 – June 10 *+ Assignments*	Tuition: $1,750
HVAC LEVEL 2								
Bellevue	201	Fall	13 weeks	87 hours	Fri/Sat	8a-5p	September 30 – December 17 *+ Assignments*	Tuition: $1,750
Bellevue	202	Wtr	8 weeks	63 hours	Fri/Sat	8a-5p	January 27 – March 25 *+ Assignments*	Tuition: $1,750
Bellevue	203	Spr	9 weeks	51 hours	Fri/Sat	8a-5p	April 28 – June 17 *+ Assignments*	Tuition: $1,750
HVAC LEVEL 3								
Bellevue	301	Fall	13 weeks	87 hours	Fri/Sat	8a-5p	September 16 – December 17 *+ Assignments*	Tuition: $1,750
Bellevue	302	Wtr	8 weeks	63 hours	Fri/Sat	8a-5p	January 20 – March 18 *+ Assignments*	Tuition: $1,750
Bellevue	303	Spr	9 weeks	51 hours	Fri/Sat	8a-5p	April 21 – June 17 *+ Assignments*	Tuition: $1,750
HVAC LEVEL 4								
Bellevue	401	Fall	13 weeks	87 hours	Fri/Sat	8a-5p	September 9 – December 10 *+ Assignments*	Tuition: $1,750
Bellevue	402	Wtr	8 weeks	63 hours	Fri/Sat	8a-5p	January 13 – March 11 *+ Assignments*	Tuition: $1,750
Bellevue	403	Spr	9 weeks	51 hours	Fri/Sat	8a-5p	April 14 – June 10 *+ Assignments*	Tuition: $1,750

OSHA®

All first year classes include
OSHA 10 for Construction