HVAC IIIA-Fall 2024 (HVAC 2310)

Welcome back to the HVAC Apprenticeship program! Congratulations on beginning your third year.

This semester, we will explore and discuss guiding principles for customer relations and dealing with demanding customers. We will continue studying heat pumps, gas heating equipment, and oil heating equipment from a troubleshooting perspective. Hydronic heating and cooling fundamentals will be introduced and steam systems explored. We will also prepare to take the North American Technician Excellence (NATE) Core exam with assignments spread throughout the semester.

There are two required textbooks this semester. One of our objectives this semester is to prepare for the NATE Core Exam. We will be using *Core Essentials: Preparing for the NATE Exam* (ISBN 978-1-61607-116-5) to help facilitate this preparation. This book can be purchased from RSES via their online store. It can also be purchased on Amazon.com. We will have assignments and quizzes in Canvas to assist with this learning.

The other required textbook for this semester is *Heating, Ventilating, and Air* Conditioning, Level 3, 5th edition. This text may be available in the SLCC bookstore, if not, it is available on Amazon.com and Pearson.com. Use ISBN 0-13-518510-6 or ISBN 978-0-13-51851-0 to search and verify you are purchasing the correct textbook. I highly recommend purchasing this book instead of renting it. Some of the offerings include the access code for the online material; the access code is also required. If your book does not come with the access code, you can pay for access to the online material during the registration process below.

Attendance and engagement in the online material is critical to your success in this course. Particularly, attendance is a requirement and metric used to determine successful completion of your apprenticeship program. As per the requirements set forth in 29 CFR 29.5 Standards of Apprenticeship paragraph (b)(4), each apprentice must successfully complete a minimum of 144 hours of related and supplemental instruction each year of Apprenticeship (72 hours for each of two semesters). Each core semester-long course (HVAC IA, IB, IIA, IIB, etc.) will provide 75 hours each semester to meet the requirement of this federal standard. This 75 hours is arrived at by attending a 2.5-hour lecture once a week for 15 weeks in addition to 2.5 hours of online work each week via a Learning Management System (LMS) provided by our textbook publisher and also Canvas, a LMS used at SLCC. This means you can only miss one class period each semester, while still completing all of the online work, and pass this course.

Instructors are required to record attendance each class period. It is your responsibility to ensure you have enough clock hours to successfully complete the course. Students with insufficient clock hours will not be permitted to sit for the comprehensive Final Exam at the end of the semester. These students will receive a failing grade and be required to re-take the semester course prior to moving forward in their apprenticeship.

Final Exam – A comprehensive final will be administered at the end of each semester. This comprehensive exam may include any information covered during the semester. This will be a 60-question multiple-choice exam and must be completed within two hours. This exam will account for a major portion (25%) of your final grade. Other than a calculator and a writing utensil, no other items will be allowed during testing. (A TI-30 calculator or equivalent is recommended. Graphing or programmable

calculators are not permitted. Construction Master, Electrical Pro, Project Master, or other similar calculators are not permitted. Calculators on cell phones are not allowed to be used during quizzes and exams.) This exam will account for 25% of the final grade for the class. If the student scores less than 70% on the exam, the score will be recorded as a 0 (zero).

Pay close attention to the schedule outlined below and be prepared (read the material and write down questions to ask) for the lecture. As the semester progresses, there could be a need to adjust the schedule. I will use the email function in Canvas to communicate schedule changes and reminders to the class. All assignments and quizzes in Pearson and Canvas must be completed by the due date in order to receive credit. We will meet for lecture in TAB-112 and lab activities in TAB-109.

We will be using a Learning Management System (LMS) on the website of our textbook's publisher—Pearson. All textbook-related assignments, and exam preparation materials, will only be available via this LMS. To be successful in this course, you must register for this course on Pearson's website and access this course frequently to supplement your study of the textbook.

To register for HVAC 2310:

1. Go to
2. Sign in with your Pearson student account or create your account.
3. Select any available access option, if asked.
    - Enter a prepaid access code that came with your textbook or from the bookstore.
    - Buy instant access using a credit card or PayPal.
    - Select Get temporary access without payment for 14 days.
4. Select Go to my course.
5. Select HVAC 2310 from My Courses.

If you contact Pearson Support, give them the course ID:

To sign in later:

1. Go to https://mlm.pearson.com.
2. Sign in with the same Pearson account you used before.
3. Select HVAC 2310 from My Courses.

The following schedule will be our guide to learning this semester. As usual, there are assignments in Pearson for each module. Due to their nature, scheduled labs will be performed as a class and cannot be made up.

August 20, 2024 HVAC IIIA Introduction

	Math Review
	Canvas—Module 1 Assignments and quizzes.
August 27, 2024	Module 12 Section 1 The Technician's Role in Customer Relations
	Module 12 Section 2 Handling Service Calls
September 3, 2024	Module 12 Review
	Electrical HVAC Control Symbols and Air-Cooled Chiller Control Diagram
September 10, 2024	Module 12 Exam
	Module 4 Section 1 Heat Pump Operating Cycles
	Module 4 Section 2 Heat Pump Operating Sequences
	Canvas—Module 4 Assignments and quizzes.
September 17, 2024	Heat Pump Lab
September 24, 2024	Module 4 Section 3 Testing and Troubleshooting Heat Pumps
	Module 4 Review
	Module 5 Section 1 Troubleshooting Gas Heating Components
	Canvas—Module 5 Assignments and quizzes.
October 1, 2024	Module 4 Exam
	Module 5 Section 2 Infrared Gas-Fired Heaters
	Module 5 Section 3 Gas Combustion Analysis
October 8, 2024	Module 5 Review
	Lab Activities: Combustion Analysis
October 15, 2024	Module 5 Exam
	Module 6 Section 1 Oil-Fired Heating Systems
	Canvas—Module 6 Assignments and quizzes.
October 22, 2024	Module 6 Section 2 Servicing Oil Heating Systems
	Module 6 Section 3 Oil Furnace Troubleshooting
October 29, 2024	Module 6 Review
	Module 9 Section 1 Water and Movement
	Canvas—Module 9 Assignments and quizzes.
November 5, 2024	Module 6 Exam

	Module 9 Section 2 Commercial Hot-Water Heating System Components
November 12, 2024	Module 9 Section 3 Chilled-Water Systems
	Module 9 Review
November 19, 2024	Module 9 Exam
	Module 10 Section 1 Steam-Related Fundamentals of Water
	Module 10 Section 2 Basic Steam System Cycle and Operational Components
	Canvas—Module 10 Assignments and quizzes.
November 26, 2024	Module 10 Section 3 Steam System Valves and Piping
	Module 10 Section 4 Steam Traps and Strainers
	Module 10 Review
December 3, 2024	Module 10 Exam
	Course Review and Final Exam Preparation
December 10, 2024	Final Exam

Your final grade for the semester will be calculated as follows:

Assignments and Labs	35% of final grade
Module Exams	40% of final grade
Final Exam	25% of final grade

The following grading standards will be used in this class:

Grade	Range
A	100% to 94%
A-	< 94% to 90%
B+	< 90% to 87%
B	< 87% to 84%
B-	< 84% to 80%
C+	< 80% to 77%
C	< 77% to 74%

Grade	Range
E	< 74% to 0%