HVAC IVA-Fall 2024 (HVAC 2410)

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

This semester, beginning with the challenges of water treatment, we will explore and discuss indoor environments, energy conservation schemes, and system balancing. We will also learn about the properties of air, building control systems, and equipment startup/shutdown procedures. Additionally, 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 4, 5th edition. This text may be available in the SLCC bookstore, if not, it is available on Amazon.com and Pearson.com. Use ISBN 0-13-518506-8 or ISBN 978-0-13-518506-3 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 two Learning Management Systems (LMS), Canvas and Pearson. The Pearson LMS is accessed via our textbook 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 2410:
Go to

1. Sign in with your Pearson student account or create your account.
2. 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.
3. Select Go to my course.
4. Select HVAC 2410 from My Courses.

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

To sign in later:
Go to https://mlm.pearson.com.

1. Sign in with the same Pearson account you used before.
2. Select HVAC 2410 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 22, 2024	HVAC IVA Introduction
	Math Review
	Module 1 Section 1 Introduction to Water Treatment
	Canvas—Module 1 Assignments and quizzes.

August 29, 2024	Module 1 Section 2 Mechanical Water Treatment Equipment
	Module 1 Section 3 System-Specific Water Treatment Problems
September 5, 2024	Module 1 Review
	Module 2 Section 1 Indoor Air Quality
	Module 2 Section 2 Sources of Building Contaminants
September 12, 2024	Module 1 Exam
	Module 2 Section 3 Achieving Acceptable Indoor Air Quality
	Module 2 Section 4 IAQ Equipment and Solutions
	Module 2 Review
	Canvas—Module 2 Assignments and quizzes.
September 19, 2024	Module 2 Exam
	Module 3 Section 1 Energy Recycling and Reclamation
	Canvas—Module 3 Assignments and quizzes.
September 26, 2024	Module 3 Section 2 Energy-Demand Reduction and Ice Storage
	Module 3 Review
October 3, 2024	Module 3 Exam
	Module 4 Section 1 Basic Digital Controllers
	Canvas—Module 4 Assignments and quizzes.
October 10, 2024	Module 4 Section 2 Building Management System Architecture
	Module 4 Section 3 Building Management System User Functions
October 17, 2024	No Class—Fall Break
October 24, 2024	Module 4 Section 4 System Control Strategies
	Module 4 Section 5 Interoperability
	Module 4 Review
October 31, 2024	Module 4 Exam
	Module 5 Section 1 Air Properties and Laws
	Module 5 Section 2 Psychrometrics

	Canvas—Module 5 Assignments and quizzes.
November 7, 2024	Module 5 Section 3 The Air Balancing Process
	Module 5 Section 4 Air Balancing
	Module 5 Review
November 14, 2024	Module 5 Exam
	Module 6 Section 1 Boiler Startup and Shutdown
	Canvas—Module 6 Assignments and quizzes.
November 21, 2024	Module 6 Section 2 Chillers and Water System Startup and Shutdown
	Module 6 Section 3 Air Handling and Rooftop System Startup and Shutdown
	Module 6 Review
November 28, 2024	No Class—Happy Thanksgiving
December 5, 2024	Module 6 Exam
	Course Review and Final Exam Preparation
December 12, 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%

Grade	Range
C+	< 80% to 77%
C	< 77% to 74%
E	< 74% to 0%