Electro-Mechanical Technologies Program
DAY STUDENTS
Accreditation Report

Version 1.0
Do Not Distribute

August 2, 2010
The Refrigeration School Inc.

Prepared by: Pearson Learning Solutions – Custom Curriculum

Preface:

This curriculum reflects the needs and interests of students who want a career in the Air Conditioning, Heating and Refrigeration field. This curriculum has been designed to increase a student's intellectual, personal, physical, social, and career development in the Air Conditioning, Heating and Refrigeration discipline. Lesson content was developed to rigorously challenge and engage students in their educational pursuits and has been designed to be commensurate with their level of development. This curriculum offers a balanced program for all learners and is adjustable enough to permit a wide variation of individual student participation.

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Table of Contents

The Refrigeration School's Electro-Mechanical Technologies Program has been developed to introduce students to fundamental concepts, processes, principles, procedures, and facts found within the Air Conditioning, Heating and Refrigeration field. Practical hands on activities and assignments enhance the learning experience and provide students with the skills required for a successful career in this field.

This curriculum was developed to introduce students to: the fundamentals of refrigeration, refrigeration systems and practices, fundamentals of electricity, residential and commercial wiring, residential and commercial comfort systems and basic troubleshooting techniques and tips.

Eight courses comprise the Electro-Mechanical Technologies Program curriculum. Courses 1-4 comprise the core learning units for the curriculum. These core units are all introductory in nature. Courses 5, 6, 7, and 8 should be taken after a student successfully completes the core units.

All Students must pass each course with a passing grade in order to receive certification. The eight courses are as follows:

Course 01: Fundamentals of Refrigeration
Course 02: Refrigeration Systems and Practices
Course 03: Fundamentals of Electricity
Course 04: Electric Wiring Residential
Course 05: Electric Wiring Commercial
Course 06: Comfort Systems Residential
Course 07: Comfort Systems Commercial
Course 08: Advanced Troubleshooting

Venues:

The location(s) for offering the 8 course curriculum will be determined by The Refrigeration School Inc.

Overview Course Content for Electro-Mechanical Technologies Program Certification

Overview 8 Course Curriculum

Course Description: 01 – Fundamentals of Refrigeration

This introductory course familiarizes students to the fundamentals of refrigeration. Topics include: laws of thermodynamics, pressure and temperature relationships, tools of the trade, refrigeration cycle, refrigerant management and safety. Students demonstrate their proficiencies via classroom participation, lab exercises and periodic quizzes and examinations.

Textbook(s):

Stanfield, Carter, Skaves, David Fundamentals of HVAC/R Pearson Education, 2010. ISBN: 0-13-222367-8

Collateral Material(s) and Handouts:

Lab Manual ISBN: 0-13-222410-0
MyLab Access Code ISBN: 0-13-508200-5
PowerPoint Slides – Instructor Resources

Delivery Method:

On-site

Timetable and Delivery Method

Length: 100 hours
4 Weeks/5 Days a week
Delivery Method: On-site

Course 01: Fundamentals of Refrigeration – Syllabus, Policies, & Course Schedule

Instructor:	TBD
Instructor E-mail	TBD
Instructor Phone	TBD
Office Location:	TBD
Class Days/Time:	TBD
Classroom Number:	TBD
Prerequisites:	None

Course Description:

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Terminal Course Objectives:

At the end of this course the student will be able to:

1. Summarize important thermal transfer issues found in the HVAC/R discipline.
2. Explain the fundamental physical properties of pressure found when servicing HVAC/R equipment.
3. Investigate diagnostic testing equipment used by HVAC/R technicians.
4. Examine various refrigeration system components and their operations.
5. Analyze various compressor types and their usage in the HVAC/R field.
6. Examine metering devices and their usage in the HVAC/R field.
7. Examine how to access various sealed refrigeration systems.
8. Understand the laws and regulations required for refrigerants by the EPA.
9. Evaluate a refrigerant system's evacuation and charging.

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On-site

Make-up exams
All exams must be taken on the scheduled date as established by the instructor. Extenuating circumstances may be evaluated on a case by case basis and must be approved by the instructor prior to the exam date.

Late Work
Students are permitted to submit work up until the day of the final exam. Students making up work following an absence are responsible for making up the assignment on their own time.

Class Attendance
Class attendance is mandatory. Attendance is recorded daily and calculated as part of your grade. Each class hour is worth one point for a total of 100 points possible for attendance. Students who miss more than 25 hours of class will automatically fail the class.

Required Course Materials
Students are provided with all required course materials and reading on the first day of class.

Library
The institution's library is located on the second floor across from Student Services and has numerous resources available to students, including computer and internet access, trade journals, National Electric Code Book, and other valuable resources. All students are encouraged to take advantage of the institution's library.

Classroom Rules

- Students are expected to arrive on time, be alert, attentive and respectful to other students, instructors, and all other staff.
- Students are required to dress in attire that is modest in length, coverage, and distraction free. Clothing, accessories, symbols, jewelry, or other paraphernalia that may be considered obscene or offensive are not allowed. Students are required to wear pants that cover ankle to waist, closed toed shoes, and a shirt that covers as much of the torso as possible .
- No shorts, tank tops, muscle shirts or sandals are permitted.
- No tape recorders, lap tops, or other electronic devices are allowed in the classroom. All cell phones must be turned off and put away during class hours.
- Students are not allowed to use the classroom computer, access the instructor's desk, filing cabinet, or any other instructor records.
- No weapons of any kind are permitted on campus.
- Smoking is permitted in designated smoking areas only. Students are responsible for properly disposing of all smoking material.

Grading Policy
A minimum of 70% cumulative grade is required to pass this course.

Grading Rubric

Grading Rubric	Weights (%)
Attendance	100 possible
Practical	100 possible
Final Exam	100 possible
	Total: AVG

Your Final Grade is an average of your Attendance points, Practical points, and Final points based on a 100 point scale. Please review the Grading Scale below to determine what is required to receive the letter grade you desire.

Attendance
Attendance is mandatory. Attendance is calculated as part of the student's grade. Students who miss five days or 25 hours of scheduled classroom time will automatically receive a failing grade. A student absent for 10 consecutive calendar days may be automatically terminated from the program.

Total: 100 points

Assessments, Quizzes & Exams

Assessments	Weights (%)
Check your Understanding (CYU) & Lab Exercises are one-on-one instructor remediation's provided to students during class or lab activities.	NA

Quizzes	Weights (%)
Quiz 1	12 points possible
Quiz 2	11 points possible
Quiz 3	11 points possible
Quiz 4	12 points possible
Quiz 5	11 points possible
Quiz 6	11 points possible
Quiz 7	12 points possible
	Total: 80 Points
Midterm Exam*	**Weights (%)**
Midterm Exam	20 points possible
	Total: 20 Points
Final Exam	
	100 points possible
	Total: 100 Points

***** The midterm is a 50 question test, and is worth 20 % of your overall Practical grade.

Grading Scale

Letter grades for the course will be based on the following grading scale.

Letter Grade	Percentage	Grade Point
A	90 - 100%	4.0
B	80 - 89%	3.0
C	70 - 79%	2.0
D	60 - 69%	1.0
F	0-59%	0.0

Student Code of Conduct

The Refrigeration School, Inc. expects students to conduct themselves in a professional manner at all times. The school reserves the right to immediately terminate any student for:

- Insubordination, interfering with other students, or failing to obey interim classroom policies as set forth by their instructor.
- Attending classes under the influence of intoxicants; using, selling or manufacturing of drugs.
- Unauthorized operation of equipment or violation of the industry safety code.
- Conviction of a crime, stealing, or cheating on exams.
- Any other academic integrity violation

Depending on the severity of the misconduct, the student may be subject to:

- Verbal and/or written reprimand which implies that further violations will result in probation or termination.
- Probation, involving a designated period of time during which any further acts of misconduct will result in immediate termination.
- Termination, the immediate withdrawal of the student from the School. The student may not be allowed to re-enter the School.

Course 01: Fundamentals of Refrigeration: Course Schedule	
Day 1	Unit 7 Thermodynamics: The Study of Heat
Day 2	Unit 7 Thermodynamics: The Study of Heat
Day 3	Unit 8 Pressure and Vacuum
Day 4	Unit 8 Pressure and Vacuum
Day 5	Unit 12 Refrigerant System Servicing and Testing Equipment
Day 6	Unit 12 Refrigerant System Servicing and Testing Equipment
Day 7	Unit 17 Refrigeration Systems Components and Operation
Day 8	Unit 17 Refrigeration Systems Components and Operation
Day 9	Unit 19 Compressors
Day 10	Unit 19 Compressors
Day 11	Unit 21 Metering Devices
Day 12	Unit 21 Metering Devices
Day 13	MIDTERM
Day 14	Unit 25 Accessing Sealed Refrigeration Systems
Day 15	Unit 25 Accessing Sealed Refrigeration Systems
Day 16	Unit 26 Refrigerant Management and the EPA
Day 17	Unit 26 Refrigerant Management and the EPA/ Refrigerant Systems Evacuation and Charging
Day 18	Unit 27 Refrigerant Systems Evacuation and Charging
Day 19	Review for Final Exam
Day 20	FINAL EXAM

10 Course Curriculum

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Appendix

Assignment Types

#	Assignment Types	Description
1	CYU	Check your understanding. Instructor asks one-on-one prodding questions (during class and labs) in order to determine if student is comprehending the presented educational material.
2	Quiz	Frequent, smaller type of assessment (test) placed throughout the course.
3	Exam	Larger, cumulative assessment (test) usually placed either mid-term and/or at the end of the course.
4	Discussion Forum	Threaded discussion where a student posts something and reacts to other students' postings. The discussion forum assignment type can be added to many of the other assignment types listed. For instance, students may be required to complete a Writing Assignment, post it, and then have a discussion thread about the other class member's Writing Assignments.
5	Reaction and Response	An assignment (and not a Discussion Forum) where something is reviewed (such as a video, report, article, audio file, or commercial) and then a response is posted to the discussion board. No discussion is required, just a review of other students' postings.
6	Learning Log	Cumulative writings about student learnings throughout the course. Usually is graded as complete/incomplete.
7	Glossary of Terms	A cumulative assignment spread throughout the course. Students capture and define new terms from the course lessons and then submit the compiled terms and definitions to the instructor.
8	Practice Exercise	Specific exercises from the textbook, an online resource, or another source containing word problems, T/F questions, math problems, and so on.
9	Lab Assignment	Specific activity performed in a lab environment or lab simulation (such as a computer lab, language lab, chemistry lab, and so on).
10	Analysis Exercise	Exercises that present students with givens and require them to analyze and report findings. Examples include an economic analysis and a financial analysis. The format can be a report, answers to problems, and so on.
11	Case Study	A case is presented, and students answer questions related to the case. The deliverable is usually written answers to case study questions and/or a discussion thread.
12	Writing Assignment	1- to 2- page written paper that answers a question or describes an opinion. In addition, it can be used as an English assignment (for example, writing paragraphs or essays).
13	Article Review	1-page written paper that summarizes a specific article, either online or from a journal or magazine.
14	Research Paper	At least a 2-page report that requires students to conduct a fair amount of research. A research paper should require citations, unlike the Writing Assignment or the Article Review.
15	Web Research	Information presentation on a particular topic. The format of the deliverable is usually a summary of the information plus a list of the websites where the information was found.
16	Presentation	Because the delivery of a presentation can't be measured in a strictly online course, only the preparation of a presentation can be graded. This includes grading the slides, notes, and organization.
17	Course Project	Cumulative project that is spread throughout the course. Individual deliverables throughout the project can consist of many of the above types of activities.