

LANEY COLLEGE
Environmental Control Technology
Spring Semester

Course: Refrigeration Equipment Troubleshooting

Course Number/Code: ECT 015 L20438

Time: Monday - Wednesday Lecture 7:00-8:30 P.M., Lab 8:30 – 10:00 P..M.

Instructor: Greg Egelston

Office: B-151

Office Hours: 6:30-7:00 M-W

Phone: (510) 464-3292

Units: 2 units

Course Description: Practical applications of residential and light commercial refrigeration systems. Topics include safety, control components and proper procedures for installing, maintaining, diagnosing and repairing electrical and mechanical system components.

Student Outcomes:

1. Demonstrate working knowledge of how the refrigeration system works.
2. Demonstrate proper skills for troubleshooting mechanical and electrical equipment.
3. Demonstrate proper and safe handling of tools, instruments and hazardous materials.

Recommended Preparation: ECT 013, 011, 14 and Electricity for ECT.

Text book: Principles of Refrigeration, 5th Edition, Roy J. Dossat/Thomas J. Horan

Supplies Needed: Pen, pencils, color pencils, graph paper with 1/4" squares, circle template, line paper, safety glasses, medium flat blade screwdriver, philips screwdriver, two adjustable wrenches one 8" and one 12", combination wire cutter, stripper and crimper, refrigeration service valve wrench, small tubing cutter, wire connectors, one roll of electrical tape, fuse puller, friction lighter, multi-meter, gloves and tool box or pouch, amp probe, thermometer, wire jumpers, open-end wrench set.

Recommended Tools: Charging Manifold Gauges, Swaging Tool Set, Tubing Bender 180 deg., Flaring Tool and Block, and Pocket Thermometer.

Topics: Chapters 12 thru 22

12. Characteristics of Refrigerants
13. Refrigerants
14. Evaporators
15. Selecting Evaporators
16. Compressor Operating Characteristics
17. Compressor Design
18. Compressor Lubricating Oils
19. Condensors
20. Cooling Towers and Evaporative Condensors
21. Refrigerant Expansion Valves
22. Additional Types of Refrigerant Metering Devices

Homework Assignments: Students are required to turn in their assignments on time. Assignments turned in late will not be accepted. Homework is not to be done during class time.

Evaluation: The following projects will be evaluated and graded.

1. Mechanical lab projects	300	100-90%	A
2. Electrical lab projects	300	90-80%	B
3. Homework and quizzes	100	80-70%	C
4. Mid term examination	50	70-60%	D
5. Class Participation	150	60-50%	F
6. Final examination	100		

Total points: 1000 points

Safety Test: Students must take the safety test required in this program.

Attendance: Students may be dropped from the course if the number of absences exceed two weeks worth of class meetings. However, extenuating circumstances may warrant consideration. Tardiness will count as a missed day.

Conduct: No cell phones are allowed in class. No shorts are allowed. No talking unless instructor invites discussion. Second violation will result in being removed from class.

Note: Students are required to wear safety glasses in the lab work area.

Note: It is student's responsibility to drop classes.