

LANEY COLLEGE
Environmental Control Technology
Spring Semester

Course: Advanced Refrigeration

Course number / code: ECT 014 L20436

Time: Mondays Lecture 7:00 – 8:30 P.M., Lab 8:30 – 10:00 P.M.

Instructor: Greg Egelston

Office: B151

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

Phone: (510) 464-3292

Units: 2 units

Course Description: Building on ECT-013, and 011, this course will introduce students to more complex and detailed methods of investigating system components. It will also cover medium temperature refrigeration, ice machines, low temp defrost methods, evaporative condensers, capacity controls, multiplex multistage systems and safety.

Student Outcomes:

1. Explain the state of the refrigerant in any part of the refrigeration system.
2. Explain the function of each refrigeration component in a system.
3. Demonstrate proper and safe handling of tools, instruments, equipment and hazardous materials.
4. Describe the different types of refrigeration systems and their use.
5. Demonstrate skills for proper wiring controls, compressors and equipment.

Recommended Preparation: ECT 013,ECT 011, English, Basic Math, Applied Physics, and Fundamental of Electricity

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

Supplies Needed: Pen, pencils, colored felt tip pens, graph paper with 1/4" squares, circle template, line paper, safety glasses, flat blade screwdriver, philips screwdriver, two adjustable wrenches one 10" and one 12", combination wire cutter, stripper and crimper, wire connectors, one roll of electrical tape, fuse puller, multi- meter, gloves, tool box or pouch.

Recommended Tools: Charging Manifold Gauges, Refrigeration Service Valve Wrench, Small Tubing Cutter, Swaging Tool Set, Tubing Bender, Flaring Tool Set, Friction Lighter and Pocket Thermometer.

Topics: Chapters 1 thru 11

1. Introduction to Refrigeration
2. Food Preservation
3. Food Preservation and Storage Processes
6. Properties of Vapor
7. Gas Laws
8. Ideal Gas Processes
9. The Refrigeration Cycle
10. The Theoretical Saturated Vapor-Compression Cycle

11. The Actual Vapor-Compression Cycle

Homework Assignments: Students are required to turn in their 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	200	100-90%	A
2. Electrical lab projects	200	90-80%	B
3. Homework and quizzes	100	80-70%	C
4. Mid term examination	150	70-60%	D
5. Class Participation	200	60-50%	F
6. Final examination	150		

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.