

LANEY COLLEGE
Environmental Control Technology
Spring Semester

Course: Residential and Light Commercial HVAC Troubleshooting

Course Number/code: ECT 017 L20442

Time: Thursdays 6:00 PM – 10:00 PM

Instructor: Nick Kyriakopedi

Office: B151

Office hours: Thursdays 5:30 to 6:00pm

Phone: (510) 464-3292

Units: 1 unit.

Course Description: Troubleshooting residential and light commercial heating and air conditioning equipment: Controls and devices, electrical diagrams, sequence of operation, service diagnosis procedures, maintenance and repair and the different types of ignition systems and safety.

Outcomes:

1. Demonstrate ability to read electrical diagrams and do basic steps of troubleshooting.
2. Explain the sequence of operation and the functions of different types of ignition systems.
4. Identify and troubleshoot the different types of primary and secondary controls.
5. Demonstrate proper use of tools and instrument and safe practice when working with electricity and combustible gasses.

Prerequisite: ECT 016

Text: Althouse, Turnquist and Brcciano. Modern refrigeration and Air Conditioning
2004 18th edition

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" or 10" and one 12", combination wire cutter, stripper and crimper, wire connectors, one roll of electrical tape, multi-meter, gloves and tool box or pouch.

Topics: Chapters 19, 20, 21, 24

Fundamentals of Air Conditioning, Basic heating and Air Conditioning Systems, Heating and Humidification Systems, Central Air Conditioning and Heat Pumps

1. Physical Properties
2. Types of Heating Units and Air Conditioning Systems
3. Types of Ignition Systems
4. Combustion
5. Venting of Furnace and Exhaust Gases
6. Troubleshooting practices
7. Maintenance practices

8. Two-Stage Furnaces

Evaluation: The following classroom work and projects will be evaluated and graded.

1. Class participation	250	100% - 90% A
2. Lab Work	500	90% - 80% B
3. Home Work	100	80% - 70% C
4. Final Exam	150	70% - 60% D
		60% - 50% F

Total: 1000 points

Safety Test: Students taking this course are required to take the safety test the first day of instruction.

Attendance: Students may be dropped from the course if the number of absences exceeds two days worth of class meetings. However, extenuating circumstances may warrant consideration.

Note: No cell phones, food and drinking allowed during class.

Please Note: This class meets for only 8 weeks.

On this short term course, if you miss 1 class your grade will drop one grade point, if you miss 2 classes your grade will drop 2 points and if you miss more the 3 classes you will have to repeat the course no exceptions.