

**LANEY COLLEGE**  
**Environmental Control Technology**  
Spring Semester

**Course:** Mechanical and Electrical Devices

**Course Number/code:** ECT 011 L20431

**Time:** Monday and Wednesday 5:30pm to 7:00pm

**Instructor:** Nick Kyriakopedi

**Office:** B151

**Office Hours:** 4:30-5:30 M-Th

**Phone:** (510) 464-3292

**Units:** 2 units

**Course Description:** Basic concepts of electrical principles, electricity and electronics as applied in Air Conditioning, Heating and Refrigeration operations. Ohm's law, AC and DC circuits, power, instrumentation, electrical, mechanical and electronic controls and devices will be covered.

**Student Outcomes:**

1. Describe the basic concepts of electricity.
2. Describe the different types of controls and devices and their application.
3. Demonstrate skills for reading and interpreting electrical diagrams.
4. Demonstrate safe use of electrical tools and instruments for proper wiring and troubleshooting equipment and controls.

**Recommended Preparation:** ECT 013, English, Basic Math and Basic Electricity

**Textbook:** Modern Refrigeration and Air Conditioning, Althouse, Turnquist and Bracciano Pub. Goodheart Wilcox Ed. 1996 and Electricity, Electronics and Wiring Diagrams for HVAC/R. Edward E. Mahoney.

**Supplies Needed:** Pen, pencils, color pencils, graph paper with 1/4" squares, circle template, line paper, safety glasses, medium flat blade screwdriver, philips screwdriver, combination wire cutter, stripper and crimper, one roll of electrical tape, wire connectors, fuse puller, multi-meter, leather gloves and tool box or tool pouch.

**Recommended Tools:** None

**Topics:** Chapters in Modern Refrigeration and A/C Text Book 5, 6, 7, 8

Chapters in the Electrical Text Book 1, 2, 3, 4, 5, 6, 8, 9, 10, 12, 14, 16, 18, 19, 20

1. Refrigerant Controls
2. Electrical - magnetic fundamentals
3. Electrical motors
4. Electrical circuits and controls
5. Refrigerators and Freezers
6. Commercial Systems
7. Air Conditioning and Heating Control System

**Homework assignments:** Students are required to turn in their homework on due day. For late assignments 10% of the grade will be subtracted for each day.

**Evaluation:** The following projects will be evaluated and graded.

1. Mechanical projects	200	100% - 90% A
2. Electrical projects	300	90% - 80% B
3. Class participation	200	80% - 70% C
4. Mid term examination	100	70% - 60% D
6. Final examination	200	60% - 50% F
<b>Total points:</b>		<b>1000 points</b>

**Safety Test:** Student must take the safety test required in this program. When in lab students are required to wear safety glasses and gloves.

**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.

**Note:** No cellphones, eating or drinking allowed in during class.

**Note:** It is the students' responsibility to drop any of the classes.