

**LANEY COLLEGE**  
**Environmental Control Technology**  
Spring semester

**Course:** Commercial HVAC Systems

**Course Number/code:** ECT 022 L20446

**Time:** Monday 7:00pm to 10:00pm

**Instructor:** Charles Frost

**Office:** B151

**Office Hours:** 5:00 to 5:30 pm

**Phone:** 510-464-3292

**Units:** 2 units.

**Course Description:** Introduction to commercial HVAC Systems, with emphasis on how building components such as chillers, boilers, fans, pumps, variable frequency drives, and associated ventilation and zone equipment work together to form complex systems. This course will also cover the Psychrometric processes of air, review of thermodynamics of (HVAC) Heating Ventilation and Air Conditioning, system commissioning, energy conservation, proper and safe use of tools and instrumentation and good maintenance practices.

**Student Outcomes:**

1. Explain the purpose and their function of the main components that make up a commercial building mechanical system.
2. Explain the principles of thermodynamics as they apply to HVAC systems.
3. Describe proper and safe practices when working on mechanical equipment, electricity and other energy sources
4. Describe proper maintenance requirements and procedures for building mechanical systems for better human comfort and energy conservation.

**Recommended preparation:** basic skill levels in reading, writing, and math,

**Text Book:** Air conditioning Principles and Systems by Edward G. Pita

**Supplies Needed:** Pencils, colored highlighters, graph paper, line paper, safety glasses, gloves, medium flat blade, flathead and phillips screwdrivers, two adjustable wrenches one 8" and one 12", combination wire cutter, stripper and crimper, one roll of electrical tape, wire connectors, fuse puller, digital multi-meter and tool box.

**Lecture:** The class will concentrate on the following areas:

1. Review of building HVAC systems.
2. Overview of the Psychrometric processes of air
3. Review of electrical theory and instrumentation
4. Energy savings using economizer, temperature reset and equipment schedules

5. Overview of proper building equipment operation and maintenance procedures
6. Evaluation of system performance as compared to the design intent of the building.

<b>Grading Policy:</b>	Attendance and class participation	50%
	Midterm Exam	25%
	Final Exam	25%
<b>Total: 100 points</b>		

**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.