LANEY COLLEGE
Environmental Control Technology
Spring Semester

Course: Advanced Direct Digital Controls
Course Number/code: ECT 027 L21510
Time: Monday - Wednesday 5:30 PM – 7:00 PM
Instructor: Chuck Frost
Office: B123 **Office Hours:** Monday - Wednesday 5:00 to 5:30 pm

Phone: (510) 464-3292 **Units:** 2 units.

Course Description: This course will introduce students to the advanced concepts and operation of DDC controls. We will also cover input and output devices, programming strategies and translating sequence of operation documents for an HVAC system into an operations program for a DDC system.

Student Outcomes:

1. Demonstrate the proper installation, wiring, and programming of a building control system.
2. Generate proper documentation for DDC systems.
3. Demonstrate necessary skills for troubleshooting both hardware and software problems.
4. Demonstrate necessary calibration procedures for input and output devices.
5. Read and write sequence of operations for HVAC systems.
6. Create comprehensive commissioning test procedures for testing control systems.

Recommended preparation: Fundamentals of Direct Digital Controls, Electricity and Instrumentation, Computer Programming, English and Math

Text: Ronnie J. Auvil HVAC Control Systems American Technical Publishers, Inc. First Edition 2003

Supplies Needed: Pencils, colored felt tip pens, graph paper with 1/8" squares, circle template, line paper, safety glasses, gloves, medium flat blade and philips screwdrivers, two adjustable wrenches one 8" and one 12", combination wire cutter, stripper and crimper, one roll of electrical tape, wire connectors, fuse puller, multi-meter, pocket thermometer and tool box or pouch.

Topics: Chapters 14 thru 27

1. Fundamentals of heating and air conditioning
2. Fundamental of building controls
3. Instruments, tools and materials
4. Basic HVAC control systems

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

1. Fundamentals of building commissioning	300	
2. Programming building control systems	300	
3. Proper installation procedures	200	
4. Safety procedures		100
5. Assessment test	100	
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.