Salt Lake Technical College
SALT LAKE COMMUNITY COLLEGE

Air Conditioning, Heating, and Refrigeration Program

TEAC 1500 Capstone Project

Course Description:

The objective of this course is to provide the opportunity for students to demonstrate knowledge and skills they have obtained throughout this program. Typically, this project will consist of installing a furnace/AC split system, or a combination of multiple smaller projects that will provide similar opportunity. The student will be asked to document the process and progress of the project via photos and scanned documents. General installation and troubleshooting skills will be demonstrated by the student.

Required Materials:

Safety glasses must be worn when working in the lab. General safety rated plastic glasses or prescription safety glasses are acceptable. The following list of hand tools and meters are a minimum and are required:

- HVACR Clamp Multi-Meter UEI DL479, DL569, DL579, or similar available at some supply houses or Amazon.
- 6 in 1 screwdriver (#1 and #2 Phillips screwdrivers, 1/4” and 3/16” slotted screwdrivers, 1/4" and 5/16” nut-drivers)
- Small 1/8” flat-blade screwdriver (control screwdriver) used for thermostats.
- Hex wrench set, SAE (not metric), long-arm (not folding)
- Adjustable open-end wrench, 6”
- Adjustable open-end wrench, 8”
- Two pocket thermometers, UEI PDT650 or similar
- Magnet (approx. 2”X3/4”X1/2”) or The Old Switcheroo (Google to find source)
- Refrigeration service wrench, Yellow Jacket model 60613 or similar
- Measuring tape, at least 16’
- Electrical tape, 1 roll.
- Tubing cutter, Rigid model 150 or similar
- Deburring tool, Yellow Jacket model 60163 or similar
- Jumper wires with alligator clips

Course Competencies/Objectives:

As a student you will be required to complete the following Competencies:

- Create a material list of everything the project will require. Have your instructor approve the list via their initials.
- Photos depicting the progress of at least all major steps.
    - Setting the equipment
    - Electrical connections
    - Natural gas and refrigerant piping and leak-free validation/pressure test
    - Evacuation
    - Charging
- Sheet metal project to be determined by the instructor.
- Commission the installed system:
    - Gas burner
    - Temperature rise
    - Refrigerant charge validation
        - Sub-cooling
        - Superheat
        - Pressures
        - Evaporator temperature delta
    - Record all motor operating voltages and amperages.

Attendance & Attendance Schedules:

This course is structured to allow students to work at their own pace. However, this course must be completed by the end of the semester the course was registered in. While substantial preparation work can be performed outside of the classroom and lab, most of the lab assignments are hands-on and require that students be in attendance for these assignments as well as for most quizzes and all exams. Students are expected to manage their schedules and complete all current (registered) coursework by the end of the current semester. Any course not completed by the end of the semester will receive a failing grade and the student will need to repeat the course before proceeding to other courses in the program.

Classroom and lab hours are Monday through Thursday 8:00AM—2:00PM and 6:00PM—10:00PM. However, if instructors have not had, or do not have, any students in the lab at 8:00PM, at their discretion, they may close the lab for the evening. Therefore, if you will be later than 7:30PM, please communicate with the instructor for that evening. The classroom and lab are located in room TAB-109 of the Technical Arts Building (TAB) on the Taylorsville campus, 1902 Community Blvd.

Parking permits are available via the SLCC website. There are some parking spaces with meters.

Grading and Evaluation:

Each assignment, quiz, and exam has an assigned point value. The course grade is determined by summing all of the assignments, quizzes, and exams and dividing the sum by the total possible points. A letter grade is determined using the percentage of points earned and the following grading standard:

Range	Grade		Range	Grade
100% to 94%	A		<84% to 80%	B-
<94% to 90%	A-		<80% to 77%	C+
<90% to 87%	B+		<77% to 74%	C
<87% to 84%	B+		<74% to 0%	E