HVAC A103: AIR CONDITIONING SERVICE

Item	Value
Curriculum Committee Approval Date	12/02/2020
Top Code	094600 - Environmental Control Technology
Units	3 Total Units
Hours	72 Total Hours (Lecture Hours 45; Lab Hours 27)
Total Outside of Class Hours	0
Course Credit Status	Credit: Degree Applicable (D)
Material Fee	No
Basic Skills	Not Basic Skills (N)
Repeatable	No
Grading Policy	Standard Letter (S)

Course Description

Operation, maintenance, diagnosis and repair of air conditioning systems and their components for proper function. PREREQUISITE: HVAC A100 and HVAC A101. ADVISORY: HVAC A105. Transfer Credit: CSU.

Course Level Student Learning Outcome(s)

1. Use meters, gauges, thermometers and other instruments for diagnostic repair of the air conditioning system.
2. Successfully complete test preparation needed for entry into the air conditioning field.

Course Objectives

- 1. Apply basic servicing and diagnostic principles for air conditioning systems.
- 2. Troubleshoot air conditioning systems.
- 3. Perform field repair of air conditioning units.
- 4. Identify electrical circuits.
- 5. Apply theory as a diagnostic tool.
- 6. Demonstrate proper maintenance of an air conditioning system.
- 7. Make repairs to systems using accepted brazing techniques.
- 8. Make a diagnostic analysis using basic principles.
- 9. Describe basic service and maintenance fundamentals.

Lecture Content

A/C System Components Compressors Condensers Evaporators Refrigerant Control Devices Electric Control Devices Motors, Starters, Protectors Accessories System Design Applications Refrigerant Piping Oxygen/Acetylene Welding Capacity Control Electric Circuits Installation and Service Servicing Fundamentals Diagnostics and troubleshooting Maintenance

Lab Content

See Course Content.

Method(s) of Instruction

- Lecture (02)
- Lab (04)

Instructional Techniques

Books and various materials from manufacturers of equipment, guest speakers, hands on demonstrations using tools of the trade including gauges, electrical meters and other diagnostic tools.

Reading Assignments

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Writing Assignments

Homework from texts and lectures; hands on demonstrations using diagnostic equipment and tools of the trade.

Out-of-class Assignments

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Demonstration of Critical Thinking

Testing using multiple choice, true/false, fill in the blanks, essay, and hands on demonstration using the tools of the trade for repair and diagnostics, including gauges and electrical test meters.

Required Writing, Problem Solving, Skills Demonstration

Homework from texts and lectures; hands on demonstrations using diagnostic equipment and tools of the trade.

Eligible Disciplines

Air conditioning, refrigeration, heating (solar energy technician): Any bachelors degree and two years of professional experience, or any associate degree and six years of professional experience. Air conditioning, refrigeration, heating (solar energy technician): Any bachelors degree and two years of professional experience, or any associate degree and six years of professional experience.

Textbooks Resources

1. Required Michael Prokup. Air Conditioning Service Guide, ed. Chicago: Prokup Media, 2007