HVAC/R SOLID STATE ELECTRONICS
Course Syllabus

Course Number: ARCO-1215  
OHLAP Credit: No
OCAS Code: None  
Course Length: 30 Hours
Career Cluster: Architecture & Construction  
Career Pathway: Maintenance/Operations
Career Major(s): HVAC Technician

Pre-requisite(s): HVAC/R Controls

Course Description: This course prepares students to recognize, troubleshoot, and replace solid state components in common heating, air conditioning, heat pumps, and refrigeration systems.

Textbooks: 
- Refrigeration & Air Conditioning Technology, 7th Ed, (2013), Whitman / Johnson/ Tomczyk Silberstein / Publisher Delmar Cengage

Course Objectives: A. Demonstrate Knowledge of Solid State Electronics

1. Explain the function and/or application in HVACR circuits and controls of:
   a. Amplifiers
   b. Bilateral switches
   c. Capacitors
   d. Diodes
   e. Direct Digital Control/System (DDC/DDS)
   f. Effects of heat and moisture
   g. Photoelectric Cell
   h. Rectifiers
   i. Resistors
   j. Semiconductors
   k. Shielded wiring
   l. Sensors
   m. Silicon Controlled Rectifiers (SCR)
   n. Thermistors
   o. Transducers
   p. Transistors
   q. Triacs

2. Explain the role computers are now playing in the HVACR industry.
3. Measure resistive value of various sensors.
4. Measure operability of various boards.
5. Test electronic air cleaners.

Tulsa Tech
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1ODCTE objective

## Teaching Methods:
The class will primarily be taught by the lecture and demonstration method and supported by various media materials to address various learning styles. There will be question and answer sessions over material covered in lecture and media presentations. Supervised lab time is provided for students to complete required projects.

## Grading Procedures:
1. Students are graded on theory and shop practice and performance.
2. Each course must be passed with seventy (70%) percent or better.
3. Grading scale: A=90-100%, B=80-89%, C=70-79%, D=60-69%, F=50-59%.

## Description of Classroom, Laboratories, and Equipment:
Tulsa Technology Center campuses are owned and operated by Tulsa Technology Center School District No. 18. All programs provide students the opportunity to work with professionally certified instructors in modern, well-equipped facilities.

## Available Certifications/College Credit:
The student may be eligible to take state, national or industry exam after completion of the program. College credit may be issued from Oklahoma State University-Okmulgee or Tulsa Community College. See program counselor for additional information.

## College Credit Eligibility:
The student must maintain a grade point average of 2.0 or better.