OUTCOMES BASED LEARNING MATRIX

Course: 223 **Department: HVAC**

Course Description: HVAC Service Procedures

COURSE OUTCOMES	OUTCOMES ACTIVITIES	ASSESSMENT TOOLS
1. Universal EPA 608 Certification.	Read & test students on their knowledge	Attaining 'Universal' 608 certification, or at least Type I, Type II or Type III
2. Ability to braze, solder, flare & swage copper tubing properly and know refrigeration tube types & sizes.	Video, & hands on demonstrations.	Questions & answers as well as students demonstrating their ability to perform typical refrigeration connections by inspection and cutting the tube open for evaluation
3. Proper use of refrigeration manifolds.	Read & understand written instructions, then demonstrate proper manifold on, off and connections to various refrigeration systems & equipment.	Demonstrate with hands on the ability to perform all manifold tasks.
4. Proper use of refrigeration equipment which includes: recovery equipment, vacuum pump, micron gauge, & P/T refrigeration chart and conversions.	Read and understand the various pieces of equipment, video, hands on demonstrations.	Questions & answers about tasks at hand, followed by hands on proper use of equipment.
5. Electrical systems, connections & use of meters.	Ability to determine where an electric problem may be and what to do about it.	Questions & answers about the task at hand. Students follow through with use of meter and correction of electric circuit.
6. Complete understanding of the compression refrigeration system cycle, pressures, temperatures and state of the refrigerant.	Show knowledge of the complete refrigeration system.	Diagram refrigeration system indicating the flow of the refrigerant through the system and what the temperature and pressure and state of the refrigerant is as it travels through the system.
7. Understanding refrigeration/ freezer applications.	Demonstration of how refrigeration/ freezer works and their controls.	Classroom demonstrations, working on trainers.
8. Understanding HVAC applications.	Demonstration of how typical HVAC system works, and their controls.	Classroom demonstrations, working on trainers.
9. Understanding Heat Pump applications.	Heat Pump theory and general applications.	Classroom demonstrations, working on trainers
10.		