HVAC1103 - Electricity for Heating, Ventilating and Air Conditioning

Credits:	4 (2/2/0)
Description:	This course explains DC and AC theory, beginning with mathematically solving and hooking up series DC circuits and advancing into solving and hooking up AC resistance in series, parallel and combination circuits. HVAC relays and contactors and furnace safety devices are studied and wired in the lab. There is a dual emphasis on reading and then hooking up and troubleshooting schematic drawings. Magnetism and the generation of AC transformers as applied to HVAC, inductors and inductance-resistance parallel and series combination circuits are solved using trigonometry. Capacitance is introduced and applied as a function in understanding AC motors.
Prerequisites:	
Corequisites:	
Pre/Corequisites*:	
Competencies:	1. Demonstrate electrical safety. 2. Describe series-parallel resistance circuits. 3. Mathematically solve combination series-parallel circuits. 4. Hook up combination series-parallel circuits. 5. Describe HVAC transformers, contactors, and relays. 6. Hook up HVAC transformers, contactors, and relays. 7. Describe series-parallel inductance circuits. 8. Demonstrate troubleshooting electrical circuits. 9. Describe combination resistance-inductance circuits. 10. Hook up combination series and parallel resistance-inductance circuits. 11. Mathematically solve resistance-inductance circuits. 12. Demonstrate application of trigonometry to alternating current circuits. 13. Describe the difference between capacitance, inductance, and resistance. 14. Demonstrate knowledge of single-phase and three-phase electricity in HVAC. 15. Relate the components of single-phase electricity: line, neutral, and ground to HVAC. 16. Demonstrate reversing the rotation of three-phase HVAC motors. 17. Design and hook up a simulated HVAC blower circuit. 18. Hook up single phase and three phase simulated HVAC motors.
MnTC goal areas:	None

Can be taking as a Prerequisite or Corequisite.