11/30/2023 DATE
☑ REQUIRED COURSE
☐ ELECTIVE COURSE

Technology DIVISION
☐ NEW COURSE
☑ REVISION

Lake Land College

Course Information Form

COURSE NUMBER:	HVC-062		TITLE: *(30 Characters Max)*		Intro to HVACR Electricity					ECH:	6
SEM CR HRS:	5	Lecture:	4		Lab:	2					
Course Level:	☐ Gen Ed / IAI ☐ Baccalaureate /Non-IAI		☑ Career/Technical ☐ Dev Ed/ Not in Degree Audit		Clinical Practicum:	0	SOE/ Internship:	0	SOE ECH:	0	
COURSE PCS #	12.470201		IAI Code						Contact Hours (Minutes Per Week)		
Repeatable (Y/N):	N	Pass/Fail (Y/N):	N	Variable Credit (Y/N):	N	Min:		Max:		16 Wks	300	8 wks	600
Prerequisites:	None										
Catalog Description: (40 Word Limit)	This course covers principles of electricity as used in the HVACR industry including circuits, electrical theory and schematic interpretation. Students learn to use hand tools and test equipment. Safety and application of math skills are stressed. Employability skills are introduced.										

List the Major Course Segments (Units)	Contact Lecture Hours	Contact Lab Hours	Clinical Practicum	Non-Clinical Internship/ SOE
Basic Electricity and Magnetism	9	2		
Introduction to Automatic Controls	4	2		
Automatic Control Components and Applications	8	2		
Troubleshooting Basic Controls	7	2		
Advanced Automatic Controls-Direct Controls (DDCs) and Pneumatics	7	2		
Types of Electric Motors	10	4		
Application of Motors	5	6		
Motor Controls	4	4		
Troubleshooting Electric Motors	6	6		
TOTAL	60	30	0	0

EVALUATION							
QUIZZES	☑	EXAMS	☑	ORAL PRES	☐	PAPERS	☐
LAB WORK	☑	PROJECTS	☐	COMP FINAL	☐	OTHER	☐

COURSE MATERIALS		
TITLE:	Refrigeration & Air Conditioning Technology	
AUTHOR:	Eugene Silberstein, Jason Obrzut, John Tomczyk, Bill Whitman, Bill Johnson	
PUBLISHER:	Cengage	
VOLUME/EDITION/URL:	9th	
COPYRIGHT DATE:	2021	

MAJOR COURSE SEGMENT	HOURS	LEARNING OUTCOMES
		The student will be able to:
Basic Electronics and Magnetism	11	Explain the basics of electricity, electric circuits, and the relationship between electricity and magnetism.
Introduction to Automatic Controls	6	Explain the difference between operational controls and safety controls and how they work in the HVACR systems.
Automatic Control Components and Applications	10	Explain automatic control components, how they work and what the controls do for different types of systems.
Troubleshooting Basic Controls	9	Troubleshoot system controls while using safety procedures.

Advanced Automatic Controls-Direct Digital Controls (DDCs) and Pneumatics	9	Describe electronic and pneumatic control applications and control circuits.
Types of Electric Motors	14	Illustrate how electric motors operate, load characteristics, torque and speed requirements for different applications. Seven different motors are covered.
Application of Motors	11	Explain different applications in which HVACR motors are used and why. Students will learn nameplate data and how it applies the different systems.
Motor Controls	8	Illustrate different styles of motor controls. Students will also learn which controls are field repairable, how to repair them and which motor controls have built in protection for the motors.
Troubleshooting Electric Motors	12	Troubleshoot electric motors and electric motor controls while using safety procedures.
Insert New Line Above this Line		
	90	

COURSE OUTCOMES*	At the successful completion of this course, students will be able to:
• Illustrate AC and DC circuits utilizing math and troubleshooting skills	
• Describe electrical schematics	
• Explain HVACR motors	
• Troubleshoot electrical circuits	

** Course Outcomes will be used in the Assessment Software for Outcomes Assessment. Limit to 3 - 5.*

This information will not be included in the Public Facing Course Information Form. For internal coding only.

Additional Course Information

Course Effective Date:
Catalog Term Effective:

Program Associated with if not a Gen Ed

Does this course replace/equate to another course. Please list

Please explain how it equates.

If course is repeatable provide rational for repeatability:

Is this course reserved for special programs. Please list for registration rules:

Revision Date History:	Changes Made: *(brief description such as Title Change or Outcomes Changed)*

Office Notes: