9/3/2024	DATE	TEC	DIVISION
☑	REQUIRED COURSE	☑	NEW COURSE
☐	ELECTIVE COURSE	☐	REVISION

Lake Land College

Course Information Form

COURSE NUMBER:	APTC-049			**TITLE:** *(30 Characters Max)*		Ethernet Communications I							
SEM CR HRS:	0.5	**Lecture:**		0.0		**Lab:**	0.5	**ICCB Lab:**		0.5	**ECH:**	0.5	
Course Level:	☐ Gen Ed/IAI ☐ Baccalaureate/Non-IAI		☑ Career/Technical ☐ Dev Ed/Not in Degree Audit			**Clinical Practicum:**	0.0	**Work-based Learning:**		0.0	**WBL ECH:**	0.0	
Course PCS & CIP:	12 - 15.0305			**IAI Code:**		N/A				**Contact Hours (Minutes/Week)**			
Repeatable (Y/N):	N	**Pass/Fail (Y/N):**	N	**Variable Credit (Y/N):**	N	**Min:**		**Max:**		**16 Wks**	25	**8 Wks**	50
Prerequisites:	None												
Corequisites:	None												
Catalog Description: (40 Word Limit)	Students will connect, test, configure, monitor and use an Ethernet network used for industrial equipment. (Meets SACA Automation Specialist I C-212 Ethernet Communications 1 credential.)												

List the Major Course Segments (Units)	Contact Lecture Hours	Contact Lab Hours	Clinical Practicum	Work-based Learning
Standard 212.1 Connect and test an Ethernet network	1	3		
Standard 212.2 Transfer programs via Ethernet network	1	1		
Standard 212.3 Connect and configure a managed Ethernet network	1	3		
Standard 212.4 View Ethernet switch network performance and diagnostics	1	1		
Standard 212.5 Configure port security of a managed industrial Ethernet switch	1	2		
TOTAL	5	10	0	0

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

COURSE MATERIALS		
TITLE:	Network+ Guide to Networks	
AUTHOR:	Tamara Dean	
PUBLISHER:	Course Technology	
VOLUME/EDITION/URL:		
COPYRIGHT DATE:	2015	

MAJOR COURSE SEGMENT	HOURS	LEARNING OUTCOMES
		The student will be able to:
Standard 212.1 Connect and test an Ethernet network	4	Performance Indicator 1. Connect and test an Ethernet network. Knowledge Indicator 1. Describe levels of industrial networks. 2. Describe the basic operation of a TCP/IP Ethernet network. 3. Describe the basic operation of an Ethernet switch.
Standard 212.2 Transfer programs via Ethernet network	2	Performance Indicator 1. Set robot and PLC Ethernet IP addresses. 2. Transfer robot/PLC programs. Knowledge Indicator 1. Describe the IP address system.

Standard 212.3 Connect and configure a managed Ethernet network	4	Performance Indicator 1. Connect a managed Ethernet network in a star topology. 2. Configure a managed Ethernet network with static and dynamic addressing. 3. Configure a managed Ethernet network subnet. Knowledge Indicator 1. Describe Ethernet network topologies. 2. Describe hardware used in large-scale industrial Ethernet networks. 3. Describe the basic operation of an industrial managed Ethernet switch. 4. Describe DHCP's automatic assignment of IP addresses. 5. Describe the operation of a managed switch subnet.
Standard 212.4 View Ethernet switch network performance and diagnostics	2	Performance Indicator 1. View managed Ethernet switch network performance and diagnostics. Knowledge Indicator 1. Describe types of Ethernet switch diagnostics. 2. Describe types of Ethernet switch network performance data.
Standard 212.5 Configure port security of a managed industrial Ethernet switch	3	Performance Indicator 1. Configure levels of port security of a managed industrial Ethernet switch to protect PLCs, HMIs, and robots. Knowledge Indicator 1. Describe components of industrial Ethernet network security. 2. Describe the operation of managed Ethernet switch port security.
	15	

Outcomes*	Outcome Title	At the successful completion of this course, students will be able to:
Course Outcome 1	SACA 212.1 APTC049	Standard 212.1 Connect and test an Ethernet network.
Course Outcome 2	SACA 212.3 APTC049	Standard 212.3 Configure a managed Ethernet network.
Course Outcome 3	SACA 212.4 APTC049	Standard 212.4 View Ethernet switch network performance and diagnostics.
Primary Laker Learning Competency	Creative Thinking & Problem Solving: Students think creatively to solve problems.	
Secondary Laker Learning Competency	Communication: Students communicate through the exchange of information.	

**Course and program outcomes will be used in the software for outcomes assessment and should include at least 1 primary and 1 secondary Laker Learning Competency. Limit to 3-5.*