10/8/2024 DATE
☑ REQUIRED COURSE
☑ ELECTIVE COURSE

TEC DIVISION
☐ NEW COURSE
☑ REVISION

Lake Land College

Course Information Form

COURSE NUMBER:	EET-075		TITLE: *(30 Characters Max)*		HMI - Human Machine Interface						
SEM CR HRS:	2	Lecture:	1	Lab:	2				ECH:	3	
Course Level:	☐ Gen Ed/IAI ☐ Baccalaureate/Non-IAI ☑ Career/Technical ☐ Dev Ed/Not in Degree Audit			Clinical Practicum:	0	Work-based Learning:	0	WBL ECH:	0		
COURSE PCS #	12 - 47.0103		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	150	8 Wks	300
Prerequisites:	EET-086 or instructor consent										
Corequisites:	None										
Catalog Description: (40 Word Limit)	This course covers basic HMI operation and programming. Topics include: designing HMI windows, interfacing to the PLC, basic animating, using and creating logic scripts, setting alarms, charting, trending and security.										

List the Major Course Segments (Units)	Contact Lecture Hours	Contact Lab Hours	Clinical Practicum	Work-based Learning
Intro to HMI	1			
Creating windows	1	4		
Using tags	3	4		
Animation	2	4		
Logic scripts	2	3		
Standard 309.06 Program and operate an HMI Project that uses information, diagnostic and alarm messages	2	3		
Charts and trending	2	6		
Standard 309.05 Program and operate an HMI Project that uses objects to interact with a PLC	1	3		
Security	1	3		
TOTAL	15	30	0	0

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

COURSE MATERIALS		
TITLE:	Instructor supplied	
AUTHOR:		
PUBLISHER:		
VOLUME/EDITION/URL:		
COPYRIGHT DATE:		

MAJOR COURSE SEGMENT	HOURS	LEARNING OUTCOMES
		The student will be able to:
Intro to HMI	1	1. Describe the concept of, need for, and possible uses of HMIs.
Creating windows	5	1. Describe how to use WindowMaker to create graphic objects, lines and outlines. 2. Describe how to use WindowMaker to arrange objects, text and images.
Using tags	7	1. Define tagname definitions, tagname dictionary and tagname types. 2. Define new tagname and tagname details. 3. Create new tagname and tagname details.
Animation	6	1. Use and understand animation links, the object type dialog box and animation link selection dialog box. 2. Apply color links, access the tagbrowser and access tagname fields. 3. Animate objects. 4. Create touch links. 5. Assign key equivalents. 6. Display links. 7. Create basic animation.
Logic scripts	5	1. Use scripts (types depend on the HMI). 2. Use IF-THEN-ELSE and comparisons.

Standard 309.06 Program and operate an HMI Project that uses information, diagnostic and alarm messages	5	1. Describe alarm types, priorities, groups and alarm fields. 2. Define tagname alarm conditions. 3. Set up standard alarm displays. 4. Configure the standard alarm system. 5. Acknowledge alarms. 6. Create alarms window and to show events. Performance Indicators: 1. Interpret a multi-screen HMI Project that uses information, diagnostic, and alarm messages 2. Enter and operate an HMI project that uses information, diagnostic, and alarm messages Knowledge Indicators: 1. Describe the operation of HMI information, diagnostic, and alarm messages.
Charts and trending	8	1. Create, configure and optimize real-time trends. 2. Log tagnames to the historical log file, creating and configuring historical logging and trends. 3. Understand historical trend fields, QuickScript functions, and the HistData Utility. 4. Create real-time trends window. 5. Create historical trends window.
Standard 309.05 Program and operate an HMI Project that uses objects to interact with a PLC	4	Performance Indicators: 1. Interpret a multi-screen HMI Project that uses discrete and numeric I/O objects to interact with a PLC. 2. Enter and operate an HMI project that uses discrete and numeric I/O objects to interact with a PLC. Knowledge Indicators: 1. Describe the operation of HMI discrete and numeric input and output objects.
Security	4	1. Use the security internal Tagnames. 2. Configure the operator's security level. 3. Change a security log on password. 4. Log onto an application. 5. Create a custom security log on window. 6. Log off an application. 7. Log off the system automatically. 8. Customize the runtime environment. 9. Customize the development environment. 10. Start an application automatically. 11. Build an application to show how application security works.
	45	

Outcomes*	At the successful completion of this course, students will be able to:
Course Outcome	Standard 309.05 Program and operate an HMI Project that uses objects to interact with a PLC.
Course Outcome	Apply an I/O tagname properly.
Primary Laker Learning Competency	Communication: Students communicate effectively and appropriately through the exchange of information.
Secondary Laker Learning Competency	Creative Thinking & Problem Solving: Students think creatively and solve problems by successfully combining knowledge in new ways.

**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.*