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

Lake Land College

Course Information Form

COURSE NUMBER:	APTC-053	**TITLE:** *(30 Characters Max)*	Robot System Operations I								
SEM CR HRS:	1.0	**Lecture:**	0.5	**Lab:**	1.0	**ICCB Lab:**	1.0	**ECH:**	1.5		
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 - 15.0405	**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**	75	**8 Wks**	150
Prerequisites:	None										
Corequisites:	None										
Catalog Description: (40 Word Limit)	Students will learn to identify robot type, applications and components, robot safety and safely operating the robot in manual and automatic modes. (Meets SACA Automation Specialist I C-215 Robot System Operations 1 credential.)										

List the Major Course Segments (Units)	Contact Lecture Hours	Contact Lab Hours	Clinical Practicum	Work-based Learning
Standard 215.1 Identify robot type, applications and components	3	3		
Standard 215.2 Robot workcell safety	3	3		
Standard 215.3 Robot manual operation	2	5		
Standard 215.4 Automatic robot operation	3	5		
TOTAL	11	16	0	0

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

COURSE MATERIALS		
TITLE:	Introduction to Robots in CIM systems	
AUTHOR:	James A Rehg	
PUBLISHER:	Prentis-Hall	
VOLUME/EDITION/URL:	5th edition	
COPYRIGHT DATE:	2003	

MAJOR COURSE SEGMENT	HOURS	LEARNING OUTCOMES
		The student will be able to:
Standard 215.1 Identify robot type, applications and components	6	Performance Indicators 1. Identify common robot applications. 2. Recognize robot types. Knowledge Indicators 1. Define a robot. 2. Describe general advantages of a robot. 3. Describe types of robots, including collaborative. 4. List robot applications and best fit robot type.
Standard 215.2 Robot workcell safety	6	Performance Indicators 1. Identify the major parts of a robot. 2. Identify the axes of a robot. 3. Identify types of end-of-arm tooling. Knowledge Indicators 1. Describe the basic operation of a robot. 2. Describe the functions of the parts of a robot. 3. Define major and minor axes of an articulated robot. 4. Define end-of-arm tooling.

Standard 215.3 Robot manual operation	7	Performance Indicators 1. Identify types of end-of-arm tooling. 2. Identify types of grippers. Knowledge Indicators 1. Describe types of end-of-arm tooling. 2. Describe the basic operation of curvilinear and parallel grippers. 3. Describe the basic operation of 2-point and 3-point grippers.
Standard 215.4 Automatic robot operation	8	Performance Indicators 1. Determine the work envelope of a robot given a specification. 2. Define a work envelope. Knowledge Indicators 1. Describe the general work envelope shape of each robot type. 2. Describe how work envelopes are specified. 3. Describe how EOT affects work envelope.
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Outcomes*	Outcome Title	At the successful completion of this course, students will be able to:
Course Outcome 1	Descr Robot APTC053	Confidently describe robotic systems concepts.
Course Outcome 2	Safe Robot APTC053	Demonstrate safe robot operations.
Course Outcome 3	Robot Manual APTC053	Operate the robot in manual mode.
Course Outcome 4	Robot Auto APTC053	Operate the robot in automatic mode.
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.*