

9/3/2024

DATE

REQUIRED COURSE

ELECTIVE COURSE

TEC

DIVISION

NEW COURSE

REVISION

Lake Land College

Course Information Form

COURSE NUMBER:		APT-053		TITLE: (30 Characters Max)		Robot System Operations I							
SEM CR HRS:	1	Lecture:		0.5	Lab:	1	ICCB Lab:	1	ECH:	1.5			
Course Level:	<input type="checkbox"/> Gen Ed/IAI <input type="checkbox"/> Baccalaureate/Non-IAI		<input checked="" type="checkbox"/> Career/Technical <input type="checkbox"/> Dev Ed/Not in Degree Audit		Clinical Practicum:	0	Work-based Learning:	0	WBL ECH:	0			
COURSE PCS #	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 <input checked="" type="checkbox"/>	EXAMS <input checked="" type="checkbox"/>	ORAL PRES <input checked="" type="checkbox"/>	PAPERS <input checked="" type="checkbox"/>
LAB WORK <input checked="" type="checkbox"/>	PROJECTS <input type="checkbox"/>	COMP FINAL <input checked="" type="checkbox"/>	OTHER <input type="checkbox"/>

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	<p>Performance Indicators</p> <ol style="list-style-type: none"> 1. Identify types of end-of-arm tooling. 2. Identify types of grippers. <p>Knowledge Indicators</p> <ol style="list-style-type: none"> 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	<p>Performance Indicators</p> <ol style="list-style-type: none"> 1. Determine the work envelope of a robot given a specification. 2. Define a work envelope. <p>Knowledge Indicators</p> <ol style="list-style-type: none"> 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*	At the successful completion of this course, students will be able to:
Course Outcome	Confidently describe robotic systems concepts.
Course Outcome	Demonstrate safe robot operations.
Course Outcome	Operate the robot in manual mode.
Course Outcome	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.