10/21/2022 DATE
☑ REQUIRED COURSE
☑ ELECTIVE COURSE

Technology DIVISION
☐ NEW COURSE
☐ REVISION

Lake Land College

Course Information Form

COURSE NUMBER:	CIM-094		TITLE: *(30 Characters Max)*		Computer Integrated Manufacturing (CIM)						
SEM CR HRS:	3	Lecture:	2		Lab:	2				ECH:	4
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 #	12.150499		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	200	8 wks	400
Prerequisites:	CIM-092 & CIM-044										
Catalog Description: (40 Word Limit)	An introduction to Computer Integrated Manufacturing. Student will learn to setup, program and troubleshoot a CIM system. This is the final course in the CIM Technology degree program.										

List the Major Course Segments (Units)	Contact Lecture Hours	Contact Lab Hours	Clinical Practicum	Non-Clinical Internship/ SOE
Introduction and Terminology	2			
Computer Use in Manufacturing	2	3		
Components of a CIM System	2	4		
Computer-Aided Design	3	4		
CNC Machines	3	4		
Industrial Robots	3	4		
Material Handling Systems	3	4		
Group Technology	4			
Programmable Logic Controllers	4	5		
Computer-Aided Inspection Systems	2	2		
Future Developments in CIM	2			
TOTAL	30	30	0	0

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

COURSE MATERIALS		
TITLE:	Computer – Integrated Manufacturing	
AUTHOR:	James A. Rehg	
PUBLISHER:	Prentice Hall	
VOLUME/EDITION/URL:	Third	
COPYRIGHT DATE:	2005	

MAJOR COURSE SEGMENT	HOURS	LEARNING OUTCOMES
		The student will be able to:
Introduction and Terminology	2	Explain terminology and purpose of Computer-Aided Manufacturing
Computer Use in Manufacturing	5	Understand the various manufacturing related uses of computers
Components of a CIM System	3	Determine basic purpose of each component in a typical CIM system
Interfacing CIM cell components	3	How CIM cell components are interfaced
Computer-Aided Design	3	Use CAD to design manufactured parts
Flow Chart	4	Crate a flow chart of operations necessary to manufacture a product.

CNC Machine Placement	3	Interface a CNC machine in a CIM cell
CNC Programming in a CIM Cell	4	Describe how CNC programs communicate with other CIM cell components
Industrial Robots	3	Understand the installation of Robots in a CIM cell
Robot Programming in a CIM cell	4	Integrate robot programs with other CIM cell components
Material Handling Systems	3	Understand the types of automated material handling systems are in use in manufacturing
Conveyor Systems	4	Integrate conveyor systems in a CIM cell
Factory Layout	4	Design the layout of a manufacturing facility.
Programmable Logic Controllers	3	Explain the use of PLC's in a CIM cell
PLC Installation	3	Connect input and output devices to PLC's
PLC Programming and Troubleshooting	3	Program and troubleshoot PLC's
Computer-Aided Inspection Systems	4	Demonstrate the use of a coordinate measuring machine.
Future Developments in CIM	2	Identify areas of manufacturing that are most likely to see increased development
	60	

COURSE OUTCOMES*	At the successful completion of this course, students will be able to:

- Analyze the operations needed to manufacture a product.
- Program and integrate an industrial robot with peripheral cell devices.
- Design the layout of a manufacturing facility.
- Synchronize a robot and CNC machine into a fully automated manufacturing cell.
- Setup and program an automated system using a PLC.

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