

# Flexible and Realistic Career and Technical Education at the College of Lake County

## Presenters

Dave Wooten, Industrial Technology Faculty & Department Chair

Miguel Mireles, Acting Dean, Engineering, Math & Physical Sciences

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College  Lake County™

College  Lake County™

# Flexible and Realistic Career and Technical Education at the College of Lake County



## MISSION

College of Lake County is a comprehensive community college committed to equitable high-quality education, cultural enrichment and partnerships to advance the diverse communities it serves.

## VISION

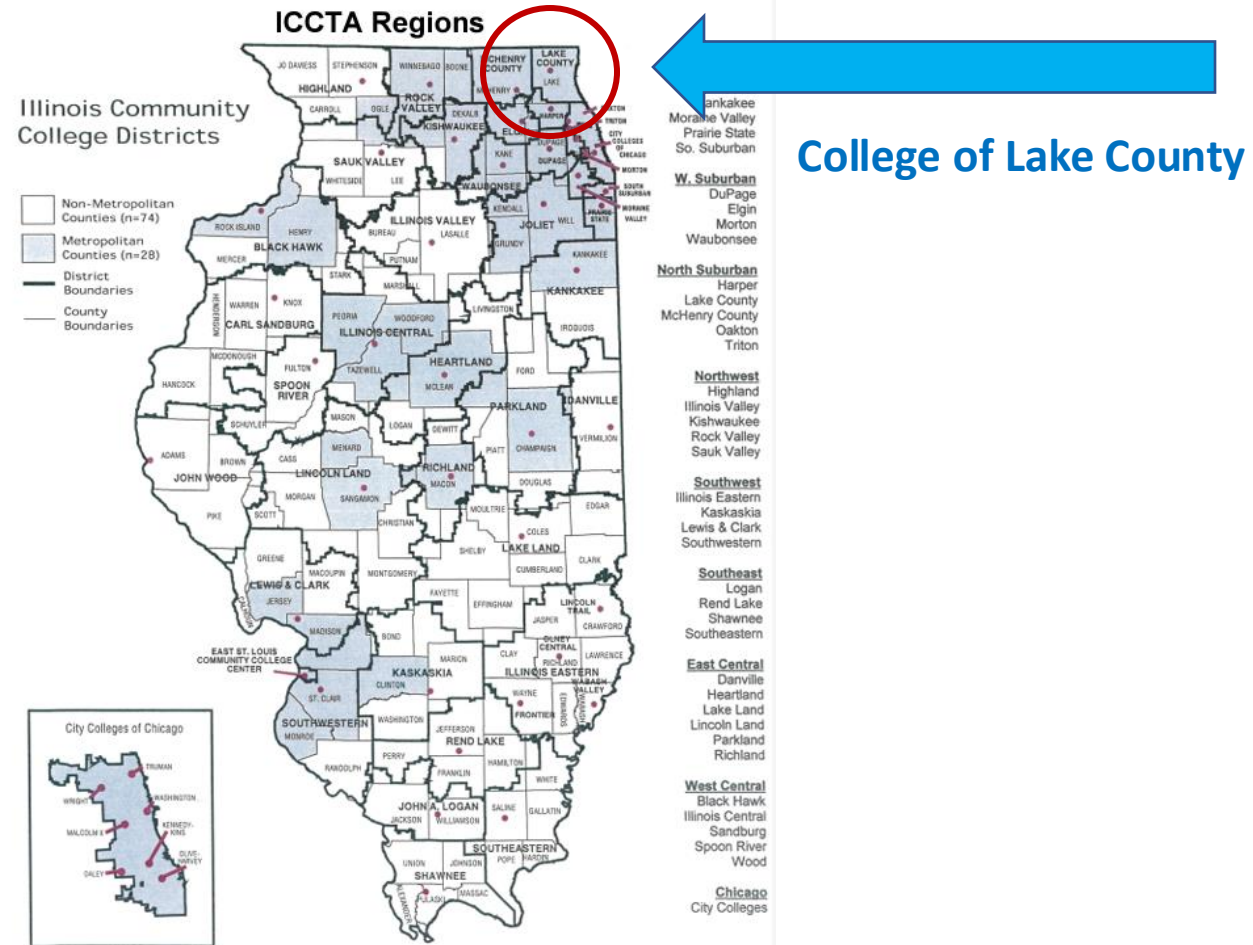
College of Lake County is a leader in providing innovative education and workforce solutions.

## VALUES

Excellence | Purpose | Integrity | Compassion | Unity | Inclusion



# Illinois Community College Districts



# College Lake County™



Grayslake Campus



Lakeshore Campus



Southlake Campus



Advanced  
Technology Center



Brae Loch Culinary  
Center & Restaurant



# AT A GLANCE

FISCAL YEAR: JULY 2022 - JUNE 2023

*Data finalized by CLC's Data Warehouse on July 24, 2023*



**MORE THAN 20,500**  
students enrolled in college, adult education, English as a second language and workforce training classes

**35,000+**  
community members served

Silhouettes of a group of people and a person walking with a bag.An icon of a hand holding three stylized human figures.

CLC employs more than **1,700** people dedicated to student success

DESIGNATED  
**HISPANIC-SERVING INSTITUTION**  
U.S. DEPARTMENT OF EDUCATION

A green silhouette of a graduate in a cap and gown.

**MORE THAN 3,400** graduates earned **4,800+** awarded credentials last year

A simple line graph showing an upward trend with an arrow pointing to the right.

CLC has reached the highest graduation rate in **20 YEARS!**



# CLC Advanced Technology Center



## MANUFACTURING IN LAKE COUNTY

### QUICK FACTS

LAKE COUNTY IS THE  
**2ND LARGEST**  
MANUFACTURING  
COUNTY IN ILLINOIS



MANUFACTURING  
COMPANIES EMPLOY  
MORE THAN  
**98,900**  
PEOPLE

THE INDUSTRY GENERATES  
**\$48.4 BILLION** \$  
\$ IN ECONOMIC OUTPUT PER YEAR



**JOB GROWTH**  
IS OUTPACING THE  
NUMBER OF SKILLED  
WORKERS AVAILABLE

CLC IS COMMITTED TO ENSURING A SKILLED  
WORKFORCE TALENT PIPELINE EXISTS TO  
SUPPORT INDUSTRY NEEDS AND FUTURE  
GROWTH OPPORTUNITIES

# Flexible and Realistic Career and Technical Education

David Wooten - Industrial Technology Faculty & Department Chair

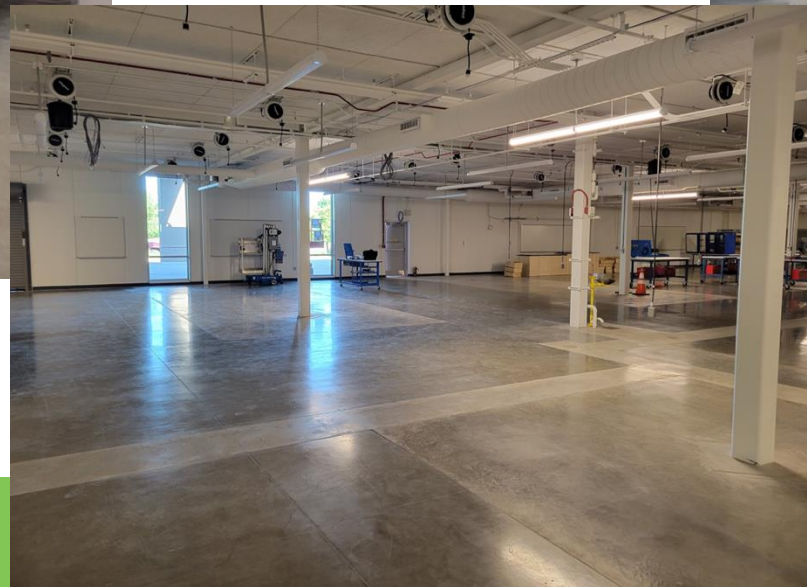
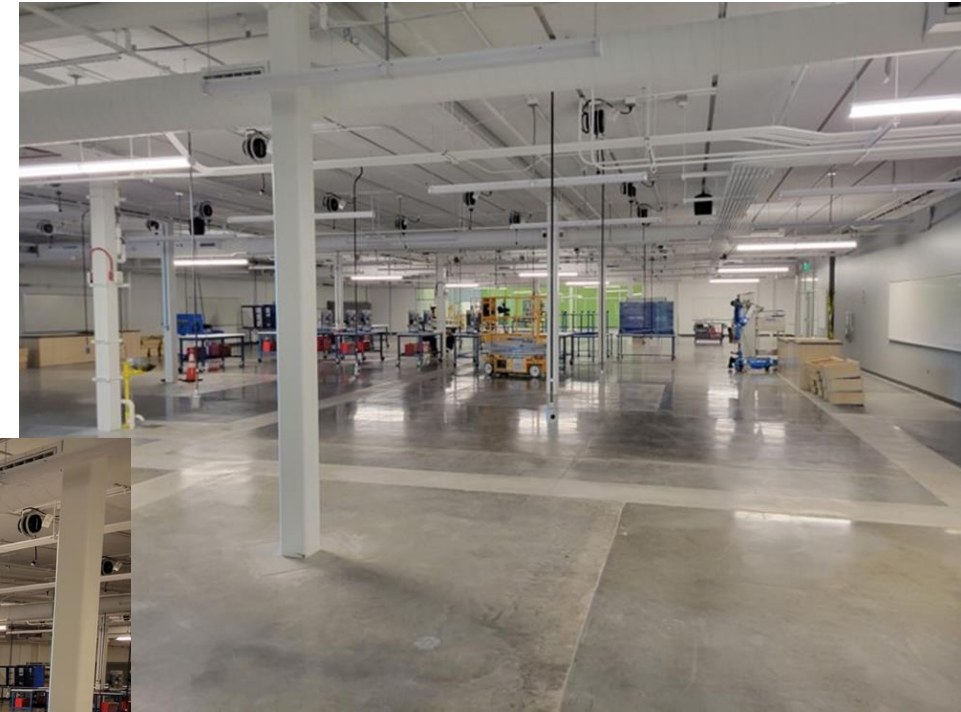
My story and how this program fits me.

What is Industrial Technology?

- Maintenance Technologists who are specialists that repair and maintain commercial or industrial machinery to ensure proper functionality. Students learn how to install, maintain, operate, diagnose, and repair equipment used in manufacturing industries and maintain facilities/buildings.

# Flexible and Realistic Career and Technical Education

The New CLC Industrial Technology Program Space - **July 18, 2022**

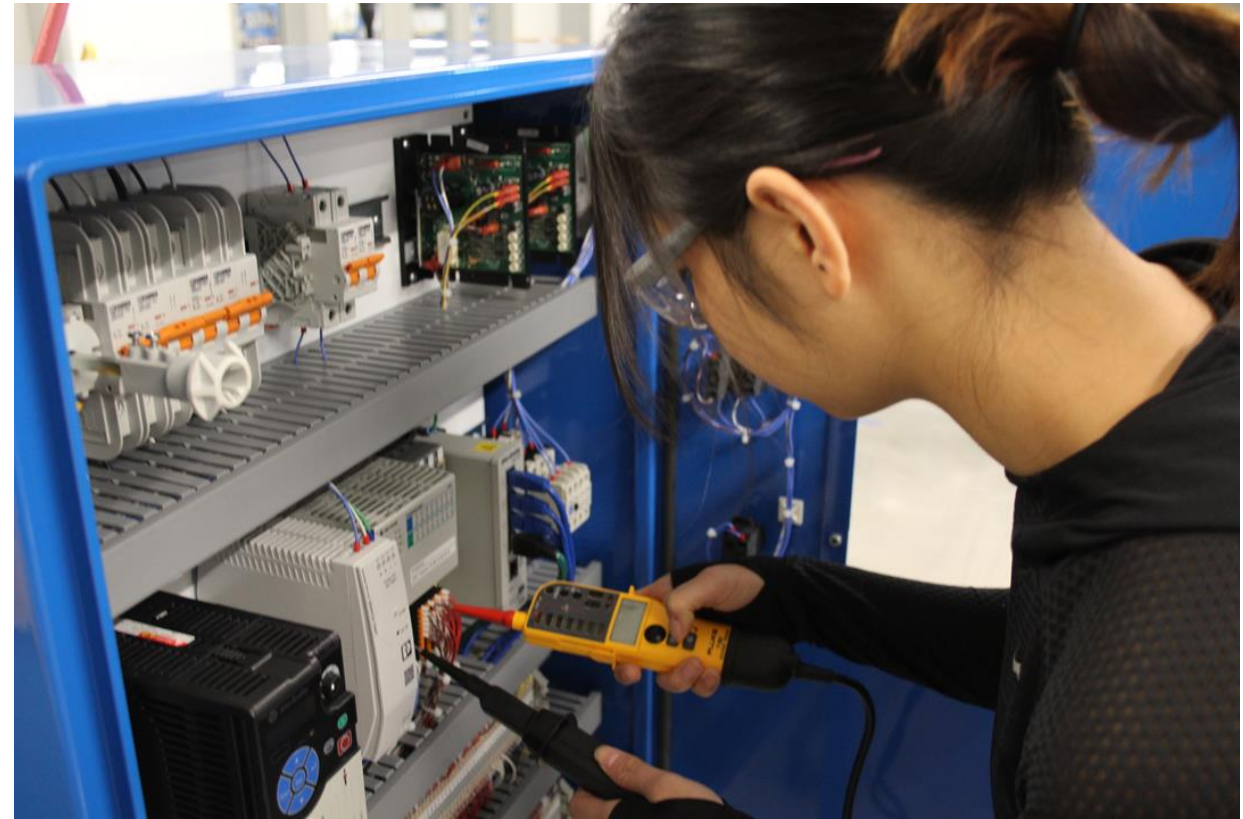


**Speed to launch strategy**



# Flexible and Realistic Career and Technical Education

**August 21, 2023** New Industrial Technology Program



# Flexible and Realistic Career and Technical Education

## The Lab now



# Flexible and Realistic Career and Technical Education

## The Lab now



# Flexible and Realistic Career and Technical Education

## The Lab now



# Flexible and Realistic Career and Technical Education

## Industrial Technology Program

- 10 content areas
  - Pneumatics, Hydraulics, AC/DC systems, Motor Control, Electrical wiring, Pump Systems, Piping Systems, Mechanical Drives, Building Automation with PLCs, Process Control, Laser Shaft Alignment, and we cover troubleshooting in all areas.
- 23 courses offered concurrently in the same space

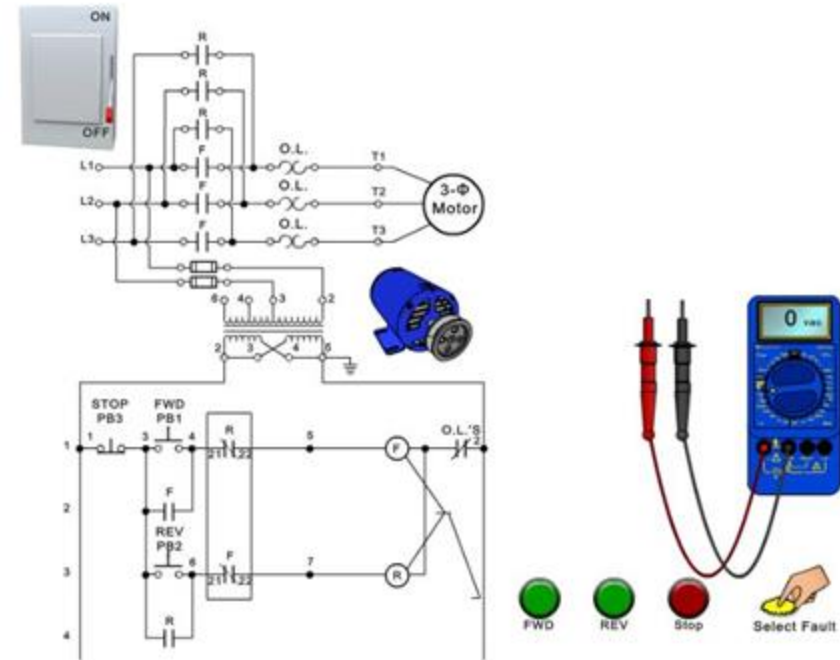


# Flexible and Realistic Career and Technical Education

## Industrial Technology Program

- Flexible Open-Lab concept
- Amatrol is Key
  - Robust online curriculum
  - Simulators
  - Resources that accompanies our Amatrol trainers is completed at home

### Knowledge Check: Reversing Motor Control Troubleshooting

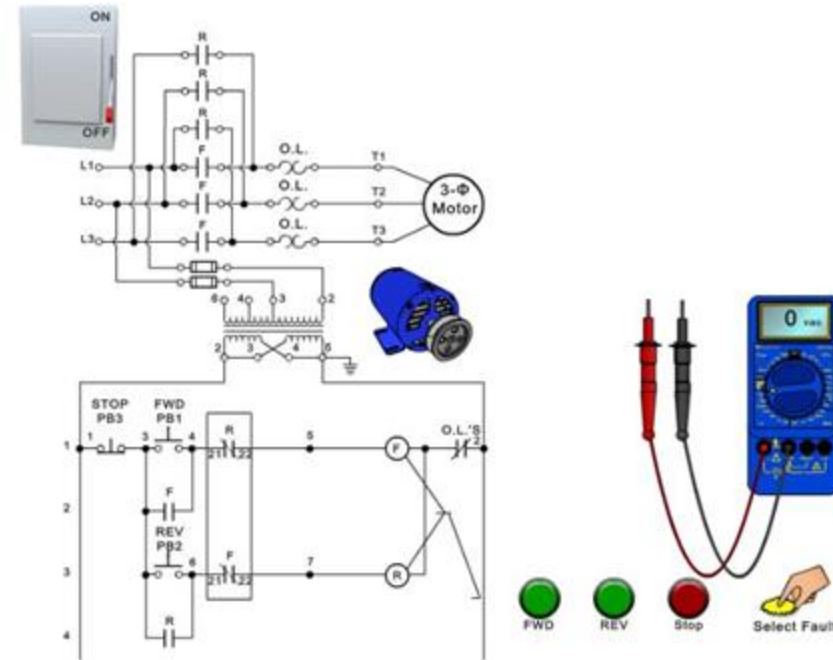


# Flexible and Realistic Career and Technical Education

## Industrial Technology Program

- Flexible Open-Lab concept
  - Lab is open from 5:00pm – 9:30pm
  - Students come in only for the hands-on labs, questions, or help
  - Faculty are in more of a coaching/mentor role than a lecture role

### Knowledge Check: Reversing Motor Control Troubleshooting



# Flexible and Realistic Career and Technical Education

## Industrial Technology Program

- Work order planner to hold students to minimum
  - Students can work ahead and get through the program quicker
- Stackable credentials - 3 certificates on the way to an Associate's of Applied Science
  - [AAS – Industrial Technology Specialist AAS \(Plan 24IE\)](#)
  - [Mechanical Maintenance Technology Certificate \(Plan 24IG\)](#)
  - [Electrical Maintenance Technology Certificate \(Plan 24IF\)](#)
  - [Industrial Maintenance Technology Certificate \(Plan 24IH\)](#)
  - SACA Credentials – We are certified to deliver 14 SACA to students as micro credentials





# Flexible and Realistic Career and Technical Education

INT Full-Time Work Order Planner ☆ 📁 Saved to Drive  
 File Edit View Insert Format Data Tools Extensions Help

100% | \$ % .0 .00 123 | Defaul... | - 14 + | B I A

C13 | fx Do the Modules listed each week. Finish the week before working on next week.

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S
1		Course #	Course title - cr/hrs/week	Week 1	Week 2	Week 3	Week 4	Week 5	Week 6	Week 7	Week 8	Week 9	Week 10	Week 11	Week 12	Week 13	Week 14	Week 15	Week 16
2		Dates	<i>Edit Week 1 &amp; Week 9 dates as to match your dates.</i>	8/28/23	9/4/23	9/11/23	9/18/23	9/25/23	10/2/23	10/9/23	10/16/23	10/23/23	10/30/23	11/6/23	11/13/23	11/20/23	11/27/23	12/4/23	12/11/23
3	1	INT 122	Basic Hydraulics 2cr/4hr.	Module 1		Module 2		Module 3		Module 4 skills 1-5		Module 4 skills 6-7		Module 4 skills 8-10		Module 5 skills 1-3		Module 5 skills 4-7	
4	1	INT 120	Basic Pneumatics 2cr/4hr.		Module 1		Module 2		Module 3		Module 4 skills 1-4	Module 4 skills 5-10	Module 5.1	Module 5.2	Module 5.3	Module 6 ARO 1&2	Module 6 ARO 4	Module 7	Module 8
5	1	INT 150	Mechanical Drives 2cr/4hr.	Module 1	Module 2 skills 1-5	Module 2 skills 6-9	Module 3	Module 4	Module 5 skills 1-5	Module 5 skills 6-8	Module 6 skills 1-2	Module 6 skills 3-end	Module 7	Module 8 skills 1-3	Module 8 skills 4-7	Module 9	Module 10 skills 1-4		Module 10 skills 5&6
6	1	INT 114	Measurement & Quantitative Skills 2cr/4hr	Module 1.1 - 1.2	Module 1.3,1.4	Module 2.1 - 2.4	Module 2.5 - 3.2	Module 3.3 - 3.6	Module 4.1 - 4.2	Module 4.3-4.4	Module 5.1 - 5.4	Module 6.1-6.2	Module 6.3-6.4	Module 7.1 - 7.2	Module 7.3-7.4		Module 7.5 - 7.6	Module 7.5 - 7.6	Module 8&9
7	1	CLC 120	College Success Seminar 2cr/4hr.																
8	1	INT 119	Print Reading 1cr./2hr. (Canvas)	Module 1	Module 2	Module 3	Module 4	Module 5	Module 6	Module 7	Module 8	Module 9	Module 10	Module 11	Module 11	Module 12	Module 13	Module 13	Module 14
9	1	ARM 111, 112	Intro to High Tech Mfg I, II 2cr/4hr. (Canvas mostly)	Module 2	Module 3	Module 4	Module 5	Module 6	Module 7	Module 8	Module 9	Module 10	Module 11						
10	2	INT 159	Electrical Systems Maintenance 3cr./6hr.	Module 1 - 2	Module 3-4	Module 5	Module 6	Module 9	Module 10-11	Module 12-13	Module 14-15								
11		Use the rows below to track your progress in either the Related Welding or the Customer Course option. Welding is not used for check ins.																	
12		Option 1	WFT 170 Related Welding	see instructor, this is not															
13		Rules:	Do the Modules listed each week. Finish the week before working on next week.																
14		Highlight courses you are enrolled in	Highlight with YELLOW Marker when complete, some use RED color for when working the module to remember where they left off.	Example 1	Example 2	Example 3	Example 4												
15		NOTE!	This sheet is the property of the Industrial Technology Department. You must use your CLC email address to access																
16			You may not delete/remove this from the department, take a photo/export to pdf if you need a copy for your use.																

# Flexible and Realistic Career and Technical Education

## Industrial Technology Program

- Retention rate and matriculation
- Dual-Credit Program
  - Two-year program 8 courses for 14 college credits
  - 12 students in first year – 5 Seniors and 7 Juniors
  - 21 students the second year 7-2<sup>nd</sup> years, 15 1st
    - Where they went
- Summer Success Scholarship
  - 9 student were funded by local businesses to take the 2 extra courses for first stackable certificate



# Flexible and Realistic Career and Technical Education

## Best Practices and the Learning Management System (LMS)

### Canvas LMS

- Each class is structured so students have to move through things sequentially
  - The students need to complete part 1 to move on to part 2
- Module consists of
  - Overview - Study guide
  - Curriculum
  - Quiz
  - Hands-on lab
  - Work order planner
    - Some modules require more resources

# Flexible and Realistic Career and Technical Education

Fall 2023

- Home
- Modules
- Grades
- People
- SCORM
- Library Resources
- Apporto Virtual Desktop
- Files
- Rubrics
- Collaborations
- Assignments
- Syllabus
- Pages
- Announcements
- Quizzes
- Outcomes
- Discussions
- Settings

Module 4 - Pneumatic Speed Control Circuits		Prerequisites: Module 3 - Principles of Pneumatic Pressure and Flow	Complete All Items		
Overview - LAP 4 - Pneumatic Speed Control Circuits	View		✓		
VB780-AA04AEN-E1 - Pneumatic Speed Control Circuits	30 pts   Score at least 24.0		✓		
Lap 4 - Pneumatic Speed Control Circuits Quiz	15 pts   Score at least 9.0		✓		
Print - Pneumatic Speed Control Circuits Documents	Mark done		✓		
Submit - Basic Pneumatics - LAP 4 - Pneumatic Speed Control Circuits Learning Plan	100 pts   Submit		✓		
Work Order Planner Check-in Mod 4	24 pts   Score at least 16.0		✓		
Module 5 - Pneumatic System Construction			Complete All Items		
Overview - LAP 5 - Pneumatic System Construction	Mark done		✓		
WXB894-XA01XEN-E1 - Pneumatic System Construction	36 pts   Score at least 28.0		✓		
Lap 5 - Pneumatic System Construction Quiz	18 pts   Score at least 11.0		✓		
Print - Pneumatic System Construction Documents	Mark done		⊘		
Submit - Basic Pneumatics - LAP 5 - Pneumatic System Construction Learning Plan	100 pts   Submit		⊘		
Work Order Planner Check-in Mod 5	24 pts   Score at least 16.0		✓		

# Flexible and Realistic Career and Technical Education

## Best Practices and the Learning Management System (LMS)

### Canvas LMS

The material is viewed multiple times, assessed, tied to practical skills, hands-on skills are assessed, and scaffolded to the next module/area.

- Student self-advocate
- Can answer Socratic questions thinking through problems
- Students internalize the material quickly
- Students also work on soft skills better in coaching environment than lecture

### Amatrol Regional Training Center

- Use of LMS innovatively resulted in the trainer manufacturer making us a train-the-trainer site
- National notoriety



# Flexible and Realistic Career and Technical Education

## Overcoming hurdles with Student Data System

- New program with open lab created several issues
- PeopleSoft limitations
  - ✓ Every class is technically a hybrid class, but how to offer it concurrently for open-lab
  - ✓ Originally listed as staggered times, but students struggled and would only show up at those times.

### Examples

- Pneumatics 1 – Mondays 5-6
- Hydraulics 1 – Tuesdays 6-7

Dual listed online and lab times, student schedule conflicts

- Needed to mark TBA on physical lab times

One lab required that sub sections of the lab be created to not have a room schedule conflict.

# Flexible and Realistic Career and Technical Education

## Local Business and Industry Partners

### How it is being utilized

- Apprenticeship and tuition reimbursement has been our biggest source of enrollment so far
- 17 of 68 student enrollment in our INT are apprentices
- 20 Employers send employees on tuition reimbursement
- Apprenticeship program at CLC 131 students
  - 89.31% Retention rate
  - 97.7% Staying rate after graduation
- The open-lab, curriculum, and apprentices



# Flexible and Realistic Career and Technical Education

## Advisory Committee's Role

Currently 117 companies actively involved on INT advisory committee

New program requires support

- Hiring Apprentices – 16 in the first year
- P&G setting up a contract so their current employees can level up at work
  - Professional development day
- Donations
  - \$30,000 towards INT and Welding success scholarships
  - \$16,500 summer success scholarship from Parker Plastics and Novelis
  - \$6000 donation from Aldridge Electric for student projects
  - Chicago Benders from IBEW 150
  - Burris Equipment - Scissor Lift Donation
  - Pipeline for hiring dual-credit graduates as apprentices

Growth

- We have 4 more employers looking to onboard apprenticeships now
- Continue partnership opportunities





# Flexible and Realistic Career and Technical Education

## Advisory Committee's Role

Currently 112 companies actively involved on INT advisory committee

### PATHWAYS TO OUR PROGRAM

- Continuing Education – Non-credit
  - ICCB grant to fund 40 workers using SACA certifications as standard
    - These students are being integrated into the open lab
- Upskilling with several advisory committee members
  - Fabrication Technology-IGM Slot Machines –upskill line workers
  - P&G - upskill maintenance technicians
  - Abbott Labs – PLC training



# Flexible and Realistic Career and Technical Education

How we know this program is successful and changing lives

- Story of Dual Credit Student & Parent
- [Manufacturing Month Student Video](#)
  - Coolest project (Snow at :36 seconds)



# Flexible and Realistic Career and Technical Education

Thank you for being here.

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