

***Developing a Future
Workforce via a
Regional Cradle-to-Career
STEM CTE Pipeline***

Bill Rayl, President/Executive Director
Jackson Area Manufacturers Association

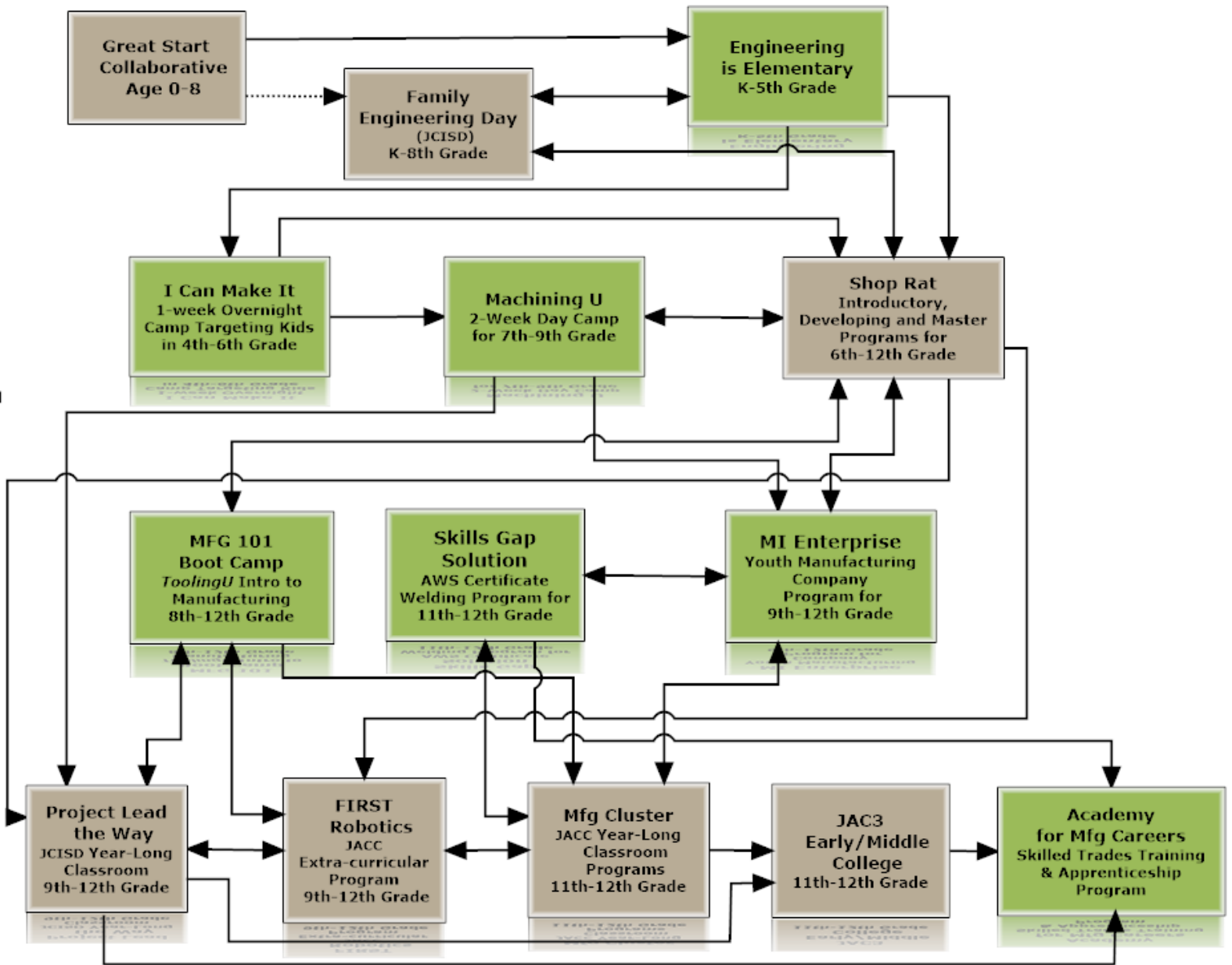
The Challenge ***From the CTE Side***



The Challenge ***From the Industry Side***

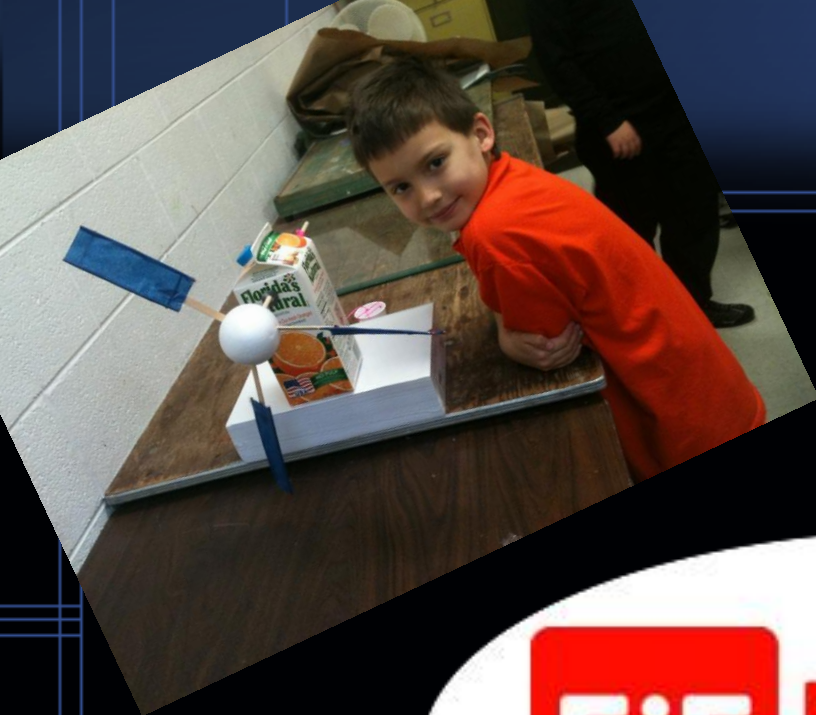


JAMA K-12 STEAMM⁺ Educational Pipeline



■ = Programs Managed by the Jackson Area Manufacturers Association

+ STEAMM = Science, Technology, Engineering, Arts, Math & Manufacturing



Engineering is Elementary

- Research-based, Standards-Driven, Classroom-Tested Curriculum from Boston Museum of Science
- Targeted at K-5th Graders
- Integrates Engineering/Technology Concepts with Elementary Science
- Connects STEM Learning with Literacy and Social Studies



I CAN MAKE IT
CAMP



I Can Make It Camp

- Week-long Summer Overnight Camp
- Targeted at 4th-6th Graders
- Initially Built on FSEA Curriculum/Kits
- Kids Learn Math & Science through Multiple Design/Build/Test Projects
- Dual Mentoring Aspect—Kids & Teachers
- Correlated to Standards & Benchmarks

Machining



Machining U

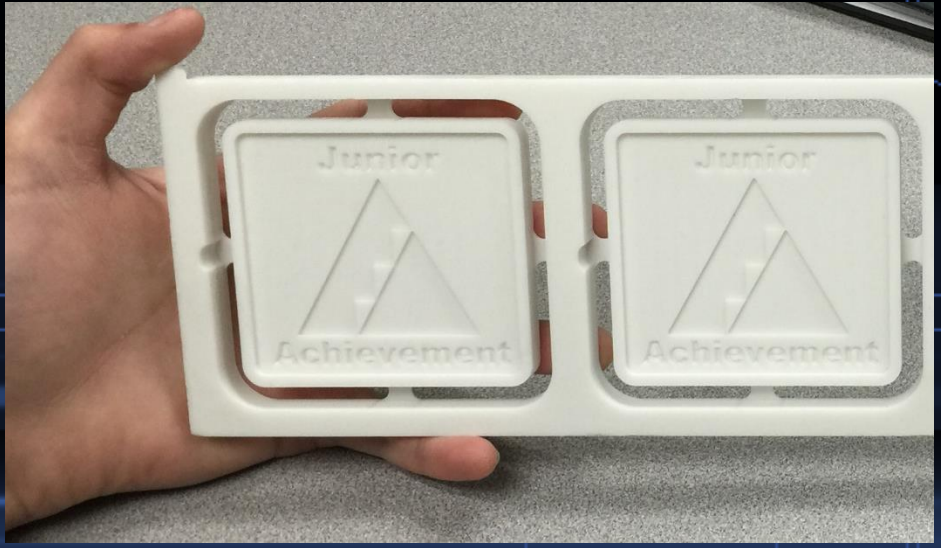
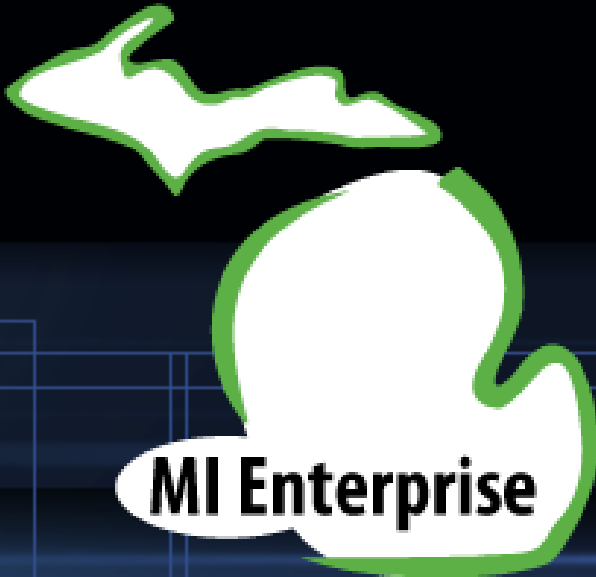
- Two-week Summer Day Camp for 7th-9th Grade Students
- Covers Basics of CAD Design, Blueprint Reading, Metrology, Welding, Machining, Fabrication and More
- *Week 1:* Kids Make Items to Take Home
- *Week 2:* Products Made are Priced, Marketed and Sold by the Kids

SHOP RAT



Shop Rat

- **Introductory Shop Rat** classes and summer camp for grades 6-8
- **Developing Shop Rat** classes for grades 7-9
- **Master Shop Rat** class where 9th-12th graders work with industry mentors and develop their own projects

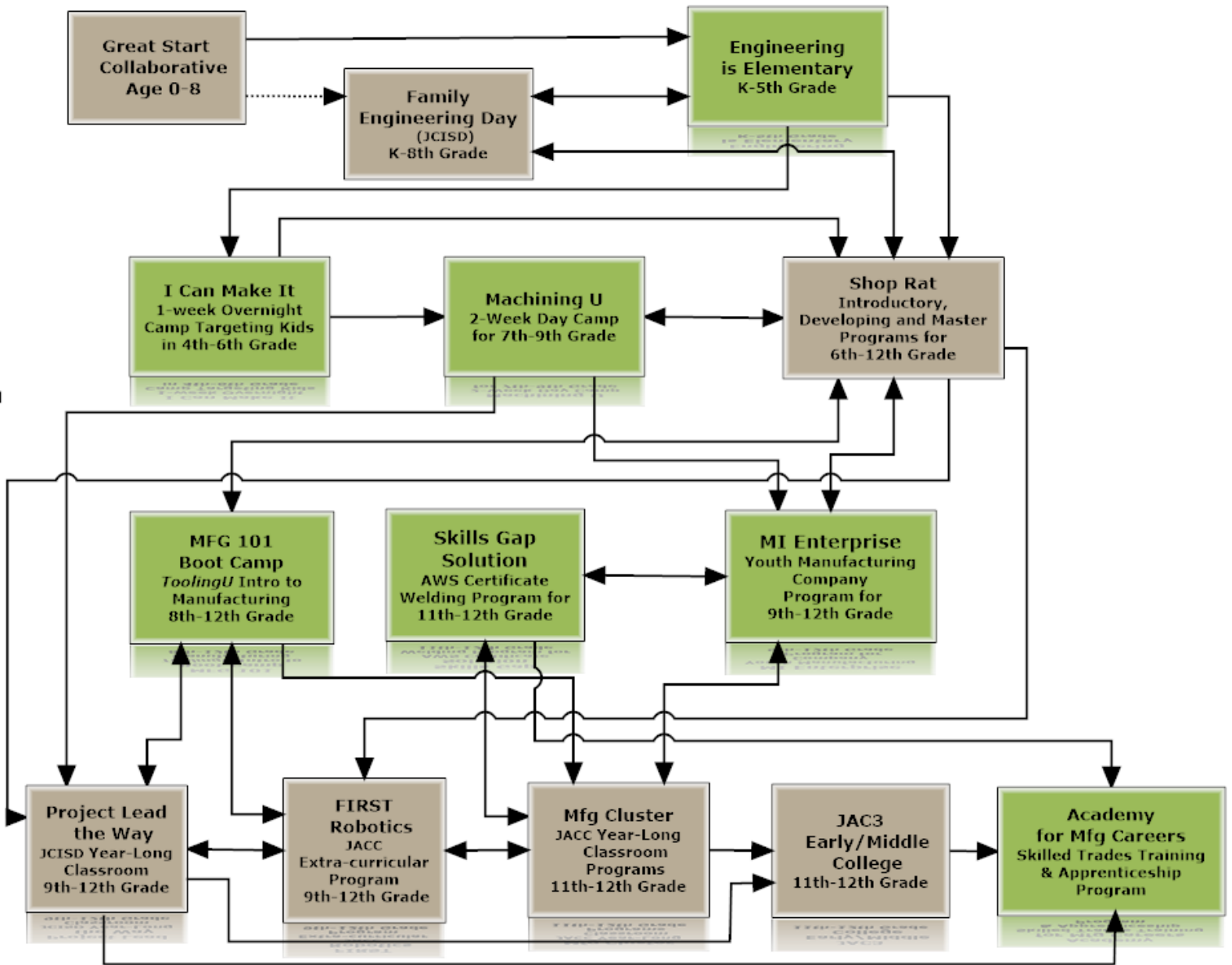


MI Enterprise

- Weekend/After School Program for 9th-12th Grade Students
- Students Run an Entire Manufacturing Company: HR, Sales, Production, etc.
- Uses Junior Achievement Company Program Curriculum and Volunteer Mentors from Area Companies

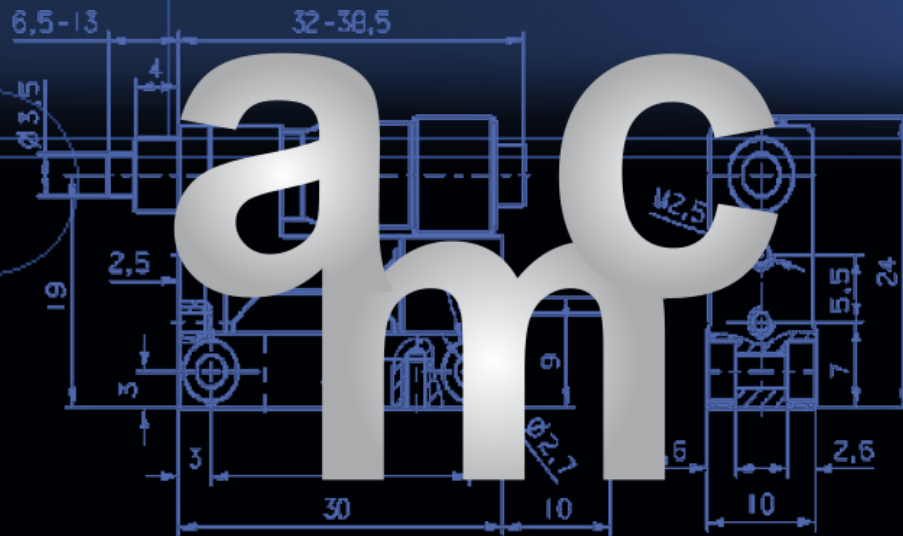
<https://vimeo.com/208486424>

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the academy for manufacturing careers



Academy for Mfg Careers

- Program Designed by Over 70 Area Manufacturers
- U.S. Dept. of Labor Registered Apprenticeship Program & State Licensed Proprietary School
- Apprenticeship Linked to College Credit & Degrees
- Linked Directly to Jackson Area Career Center Manufacturing Cluster Programs for Machining, Welding and Engineering
- DOL Recognition in 2012 as a 21st Century Apprenticeship Innovator and Trailblazer

Skilled Trades Related Technical Instruction Apprenticeship Program
Designed by Manufacturers to Meet the Needs of Jackson, Hillsdale, & Lenawee County Manufacturers

Certificate Programs

Course Title	CNC	Machine Maint.	Welding	Tool & Die	Quality Technician
Industrial Blueprint Reading	X		X	X	X
Machining Theory & Methods	X			X	X
Basic Gauges & Measurement	X	X		X	X
Materials/Metallurgy			X	X	
Basic Ind. Electricity		X			
Problem Solving					X
Int. Blueprint Reading/GD&T					X
Precision Machining Methods	X			X	
Industrial Hydraulics Pneumatics		X			
Welding I			X		
Welding II			X		
Welding III			X		
Die Theory & Design				X	
CNC Mill Theory & Programming	X				
CNC Lathe Theory & Programming	X				
Machine Maint. & Troubleshooting		X			
Drive Components & Bearings		X			
Statistical Process Control					X
Advanced Gauges & Meas./Intro to CMM					X
Basic Computer Skills					X

It's Not Just About Programs

**It's About the
Partnerships!**



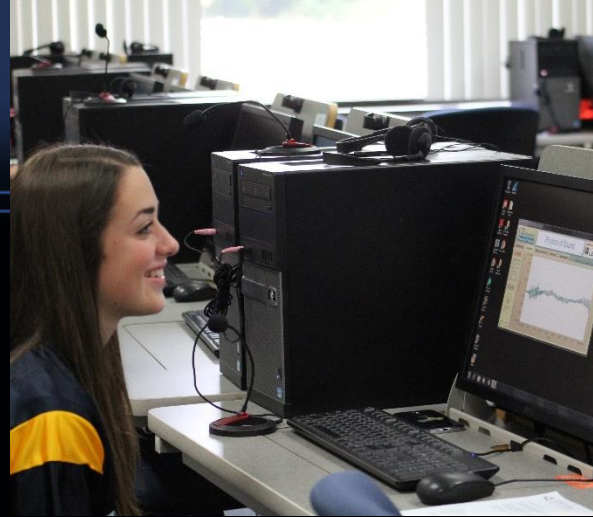
“Jackson County Cradle to Career (C2C) is the network of education and community leaders working together to achieve common goals in education. It is the community-wide, collaborative effort to address the social, financial and academic barriers to student success, from early childhood through adulthood. *C2C is a network, not a program or initiative*—it is coordinated, purposeful connections between schools, businesses, community resources and people to improve our education outcomes.”

Cradle 2 Career Partners

- Baker College
- City of Jackson
- College and Career Access Center
- Community Action Agency
- County of Jackson
- The Enterprise Group
- Family Services & Children's Aid
- Great Start Collaborative of Jackson
- Jackson Area Manufacturers Assoc.
- Jackson College
- Jackson Community Foundation
- Jackson County Chamber of Commerce
- Jackson County DHHS
- Jackson County Education Association
- Jackson County Government
- Jackson County ISD
- Jackson County Superintendents Assoc.
- Jackson District Library
- Michigan Works! Southeast
- Southeast Ministries Association
- Spring Arbor University
- United Way of Jackson County

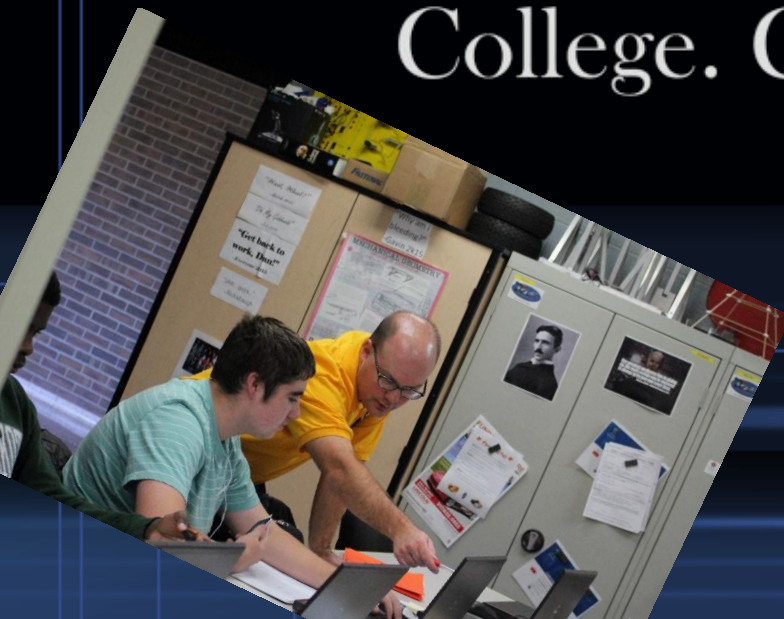
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JAC3 = E/MC

College. Career. Connection.



JAC³ Early/Middle College

- “Elite” Program for Career Center Students
- Triple Enrollment: High School, College & STRA
- Each Student is Employed by & Gains Paid Work Experience at a Local Sponsoring Company
- Available for Students in Precision Machining, Welding, Engineering, and Computer IT/Cybersecurity Programs
- Over 50 Students in the Program or Recently Graduated & Over 30 Sponsoring Companies

JAC³ Overview Video



Keys to Success

- Play to Your Region's Strengths and the Strengths of Your Partners
- Be Open to Creative Solutions
- Remove "Impossible" from Your Vocabulary
- Don't Wait for an Invitation to Lead
- Focus on the End Goal...

The End Goal:

**Development of
Economic Opportunity
through Education and
Training of Existing
and Future Workforce**



Key Project Components

- Training and Education, Focused on Both Short- and Long-Term Goals
- Program Development via Partnerships
- Collaborative Training Efforts
- Systems Articulation and Integration at both High School and Post-Secondary Levels
- **Aligned to Industry Needs, Created with Industry Input and Sustained through Ongoing and Direct Industry Participation**

Biggest Key to Success

- **Business/Industry Feels a Sense of “Ownership”**
 - Involved in the “Classroom”
 - Partners in Development & Review of Curriculum
 - Providers of Ongoing Oversight & Continuous Improvement

Questions?

Contact

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