

STATEWIDE COLLABORATION FOR ADVANCED MANUFACTURING TALENT DEVELOPMENT

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ManufacturingTDI
Manufacturing Talent Development Institute

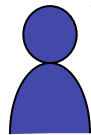


Advanced Manufacturing is a Major Economic Driver in the State

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- Accounts for \$36.7 billion of the total output in the state;
- Responsible for 85% of Florida's exports
- Compensates 54.8% higher than other sectors in the state.
- On average, manufacturing jobs pay \$10,000 more than the average annual wage of all other non-farm jobs in Florida. Manufacturing - \$53,284; Other - \$42,312.
- Florida is the 4th largest manufacturing state in the U.S. in terms of establishments and 12th largest by employment.

“With thousands of jobs available, but a lack of skilled and appropriately educated and trained workers, one of the critical impediments to greater manufacturing success in Florida is an industry-ready workforce.”



- Steve Lezman

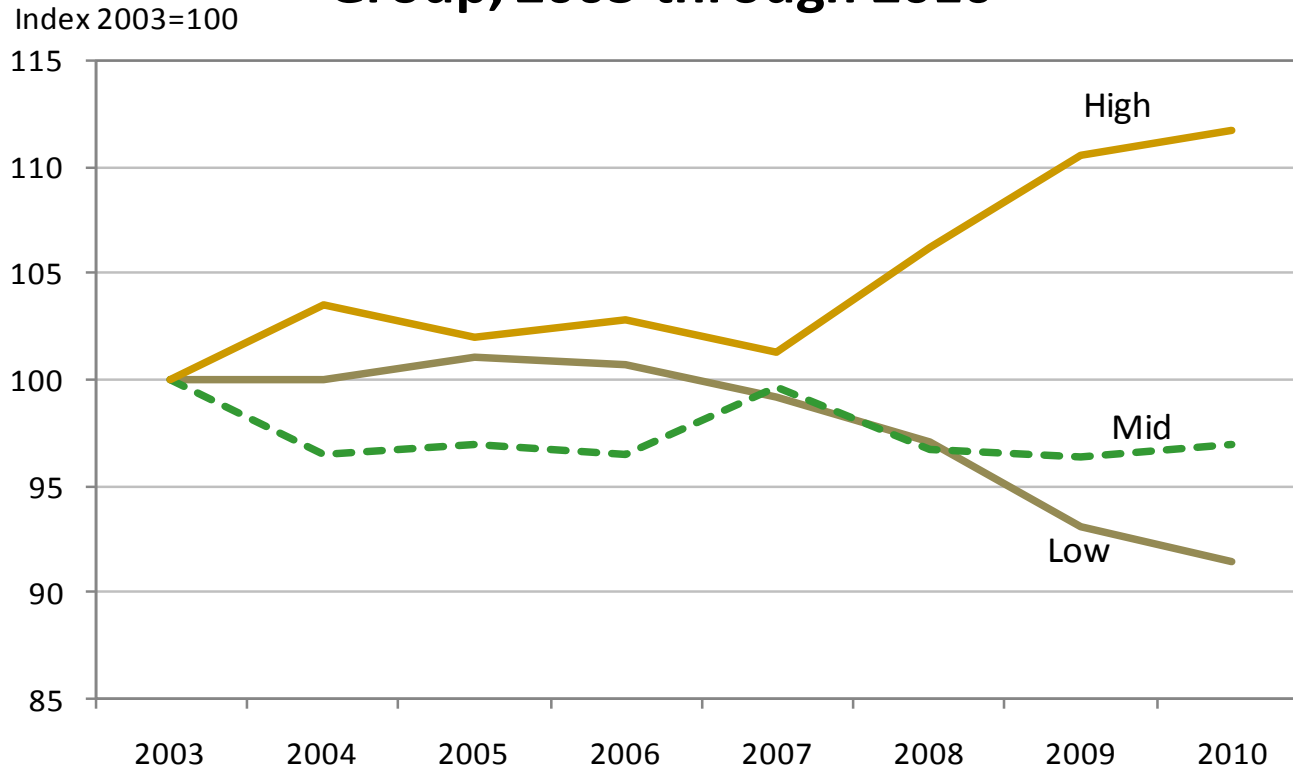
Chair, AIF Manufacturing-Aerospace-Defense Council



Manufacturing Jobs Require Higher Skills

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Manufacturing Employment by Skill Group, 2003 through 2010



Sources: Chmura Economics & Analytics and Current Population Survey.

Why?

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Employers need qualified (skilled) workers

Need to replace retiring workers (~25% are ≥ 55)

High Schools, Technical Centers, & College programs can close the gap with the right tools

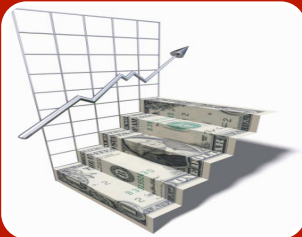
Alignment needed on academic and non-credit sides

Manufacturing Talent Development Institute

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Statewide resource for cutting-edge talent development



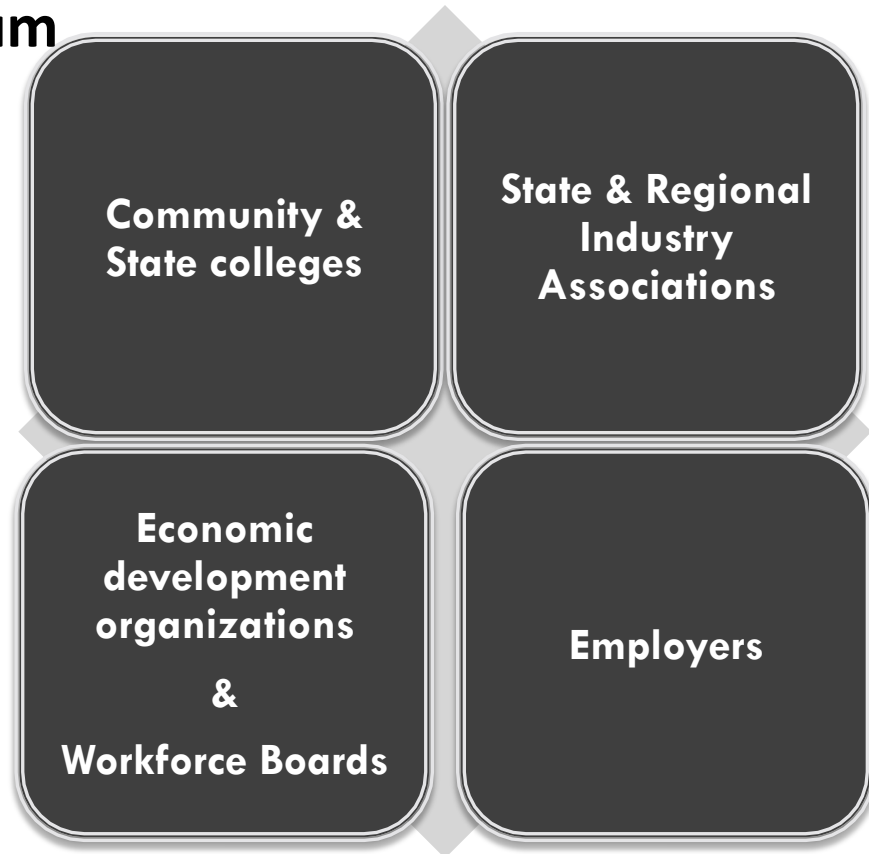
Promote and support Economic Development

MfgTDI Guidance and Governance

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Public-Private Consortium

- **Statewide nexus for industry knowledge related to workforce needs**
- **Develop and deliver industry-driven workforce development products**
- **Support pipeline development needs**
- **Expand dissemination of solutions/products**
- **Promote and support economic development**
- **Create revenue streams to become self-sustaining**



ManufacturingTDI Advisory Council

AIF – MAD Council	Knight’s Armament Company	Rockwell Automation
Bay Area Manufacturers Association	Lakeland Electric	Sarasota-Manatee Area Manuf. Assoc.
Beckman Coulter, Inc.	Lockheed Martin	School Board of Polk County
Boar’s Head Provisions	Manufacturers Assoc. of Central FL	SiVance, LLC
Broward College	MarketCues, Inc.	Society of Manufacturing Engineers
Cardio Command, Inc.	Maxwell House/Kraft	South Florida Manufacturers Assoc.
Career Tech. Education Foundation	Mid-Florida MSCA	Southwest Regional Manuf. Assoc.
Danfoss Turbocor	Mileo and Associates	St. Lucie Schools
EDC of Tallahassee/Leon County, Inc.	Mosaic Company	State College of Florida
Enterprise Florida	Pasco Economic Development Council	Suncoast Workforce Board
First Coast Manufacturers Association	Pasco-Hernando Community College	Tallahassee Community College
First Coast Workforce Development	Pasco-Hernando Jobs & Education	Tampa Bay Workforce Alliance
Florida’s Natural Growers	PEG Professional Engineering Group	Valencia Enterprises/Valencia College
Florida State College at Jacksonville	Pharmaworks, Inc.	Weather Engineers, Inc.
Hillsborough Community College	Plasma-Therm	
Jabil Circuits	Polk State College	
Jacksonville Regional COC	Polk State Corporate College	
Jefferson Project	Polk Works	

Previous Approaches

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On-the-job training – reduced because of slim margins

Vocational Career Centers – programs going away due to changing technology & changes in funding

Community colleges – frequently AA focused

Registered Apprenticeship - waning



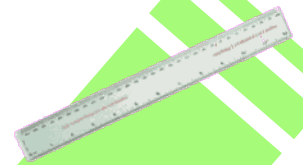
State DOE

- Curriculum Framework revisions
- Coordination w/ Com. Colleges
- Implementation of CAPE
- Partnership with DOE
- Apprenticeship Programs



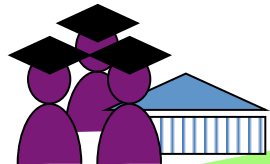
Workforce (DOL)

- Funding (IWT & EWT)
- Statewide needs
- Partnerships with DOE
- Banner Centers



External Benchmarks

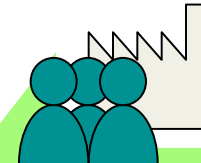
- Industry Certifications
- MSSC/SME/APICS/NIMS
- Industry standards



C.C. Academic Programs

- Articulations
- Curriculum Frameworks
- 1+1 programs
- Statewide Marketing
- Outreach

Florida's
Unified Education
System for
Manufacturing

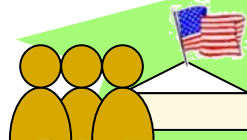


Manufacturers/ Employers

- Employer needs/skills gap
- One voice
- Regional Manufacturing Associations
- Incumbent training
- Outreach
- Support (time, \$, talent)

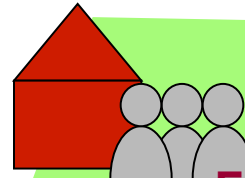
C.C. Workforce Training

- Alignment
- Articulation
- Industry Certifications
- Rapid Response
- Short-term



School Districts

- Rigor & Relevance
- Articulation
- Career Academies
- Perkins Accountability
- Industry Certifications



Four-Year Institutions

- Academic & Continuing Ed.
- Alignment / Progression
- Effective Transferability
- 21st Century Skills

Roadmap to Talent

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- Integrated academic and technical learning paths
- More available alternatives for learning, with more “on” and “off” ramps to higher education and lifelong learning systems to acquire new skills as technology advances
- The integration of nationally portable, industry-recognized credentials with educational pathways, leading to postsecondary credentials with real value in the workplace
- A heightened focus on Science, Technology, Engineering and Math skills

Florida's Unified Educational Pathways

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- Industry Certification alignment and Statewide certification-based Articulation Agreements
- Workforce Training Curricula
- Updated Secondary Career Academy Programs and Funding (CAPE Legislation)
- Updated Post-Secondary Adult Vocational (PSAV) Certificate programs
- Formal Competency-Based Apprenticeship Programs
- Updated & New Statewide AS degrees
- AS to BS & BAS Degree Pathways
- Train-the-Trainer Courses



EDUCATION & TRAINING PATHWAY			CERTIFICATION PATHWAY	CAREER PATHWAY
MASTERS & PH. D.				
BACHELORS - ENGINEERING	BACHELORS - ENGINEERING TECHNOLOGY	BACHELORS - OPERATIONS MANAGEMENT		
ASSOCIATE IN SCIENCE – ENGINEERING TECHNOLOGY (60 Credit Hours)**				
<ul style="list-style-type: none"> Degree Specializations: Advanced Manufacturing, Adv. Technology, Alternative Energy, Biomedical Systems, Digital Design & Modeling Electronics, Mech. Design & Fabrication, and Quality 15 Short-term College Credit Certificate programs Year-1 Core aligned with the MSSC CPT to allow for industry certification articulated credit 			<ul style="list-style-type: none"> (none – alignment with SME should be undertaken) 	<ul style="list-style-type: none"> Manufacturing Engineer Manufacturing Technologist Management
REGISTERED APPRENTICESHIP PROGRAMS				
<ul style="list-style-type: none"> Adv. Mfg. Maintenance: EIA Technician & Mechanic/Millwright (Mosaic / Polk State) Machining (SFMA) 			<ul style="list-style-type: none"> In process of integration into the ET Degree specializations: <ul style="list-style-type: none"> ISA CCST & ISAB4 Safety SME/ASQ/Shingo – Lean Bronze IFPS FPCT ASQ CQIA MSSC CPT * 	<ul style="list-style-type: none"> Supervisor of Production Manufacturing Technician Engineering Technician Maintenance Technician Quality Technician
PSAV PROGRAMS (Offered by Technical Centers and/or FCS Colleges)				
<ul style="list-style-type: none"> APT, Applied Welding, Machining Technology 			<ul style="list-style-type: none"> MSSC CPT *, OSHA10, Rockwell Automation, IFPS NIMS 	<ul style="list-style-type: none"> EIA (Electrical Instrumentation & Automation) Technicians Mechanical Millwright Machinist
HIGH SCHOOL CTE & CAREER ACADEMIES				
<ul style="list-style-type: none"> CAPE Legislation: Industry Certification + Career Academy format + College Credit = Bonus FTE Funding Automation and Production Technology (APT) FRAMEWORK <ul style="list-style-type: none"> Specifically Aligned with MSSC CPT PLTW Programs <ul style="list-style-type: none"> PLTW + MSSC CPT integration Engineering Technology Programs <ul style="list-style-type: none"> STEM/ENG with MSSC CPT integration 			<ul style="list-style-type: none"> MSSC CPT* NCCER or AWS NIMS 	<ul style="list-style-type: none"> Production Technicians Welders Machine Operators
			<ul style="list-style-type: none"> PLTW Solidworks Auto Desk MSSC CPT * 	<ul style="list-style-type: none"> Assemblers Lift Operators Entry Level Operator
			<ul style="list-style-type: none"> RTW (NCR C) 	

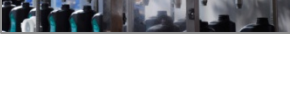
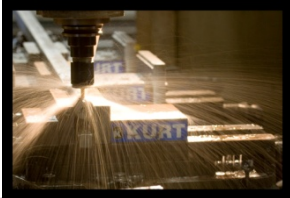
* Statewide Articulation Agreement – Attainment of certification results in 15 College Credit Hours toward the Technical Core of the Engineering Technology AS Degree

** 10 FCS Colleges - Polk State College, St. Petersburg College, State College of Florida, Hillsborough Community College, Brevard College, College of Central Florida, Florida Gateway College, Florida State College at Jacksonville, Pensacola State College, & Daytona State College

Manufacturing Cluster Career Academies

District	Site	Academy
Alachua	Santa Fe High School	Institute of Biotechnology
Columbia	Columbia High School	Applied Welding
Dade	Miami Lakes Educational Center	Electronic Technology
Dixie	Dixie County High School	Dixie Academy of Welding Technology
Gulf	Port St. Joe High School	Shark Welding Academy
Hillsborough	Jefferson High School	Applied Welding
	Hillsborough High School	Applied Welding
	Tampa Bay Technical High School	Applied Welding
Lee	East Lee County High School	Academy of Engineering and Manufacturing
	Ida S. Baker High School	Academy of Engineering and Manufacturing
Marion	North Marion High School	Biotechnology Academy
	Marion Technical Institute	Industrial Technology
Okaloosa	Okaloosa Applied Technology Center	Advanced Manufacturing Technology
Osceola	Osceola High School	Advanced Manufacturing Technology
Seminole	Seminole High School	Bio-technology
	Spanish River Community High School	Biotechnology Academy
	Seminole Ridge Community High School	Biotechnology Academy
Pinellas	Seminole Vocational Education Center	Electricity
Polk	Lake Gibson Senior High School	Industrial Biotechnology Academy
Putnam	Crescent City Jr.Sr. High School	Academy of Welding
	Palatka High School	Academy of Welding
St. Johns	Ponte Vedra High School	Academy of Biotechnology and Medical Research
	First Coast Technical College	Welding
St. Lucie	Treasure Coast High School	Manufacturing / Pre-Engineering Career Academy
Taylor	Taylor County High School	Electronics Technology
Volusia	Mainland High School	Academy of Design & Manufacturing Technology

• There are presently 39 manufacturing-related programs in 23 of 67 school districts.



Engineering Technology A.S./A.A.S Degree



I. General Education – 15 - 18 credit hours

English

Science

Math

Social Science

Humanities

II. E.T. Core - 18 credit hours

Computer Aided Design

Manufacturing Proc. & Materials

Mechanics & Instrumentation

Electronics

Quality

Safety



III. 7 Specialization Tracts – 24 to 27 credit hours

Advanced
Manufacturing

Advanced
Technology

Electronics

Mechanical
Design &
Fabrication

Digital
Design and
Modeling

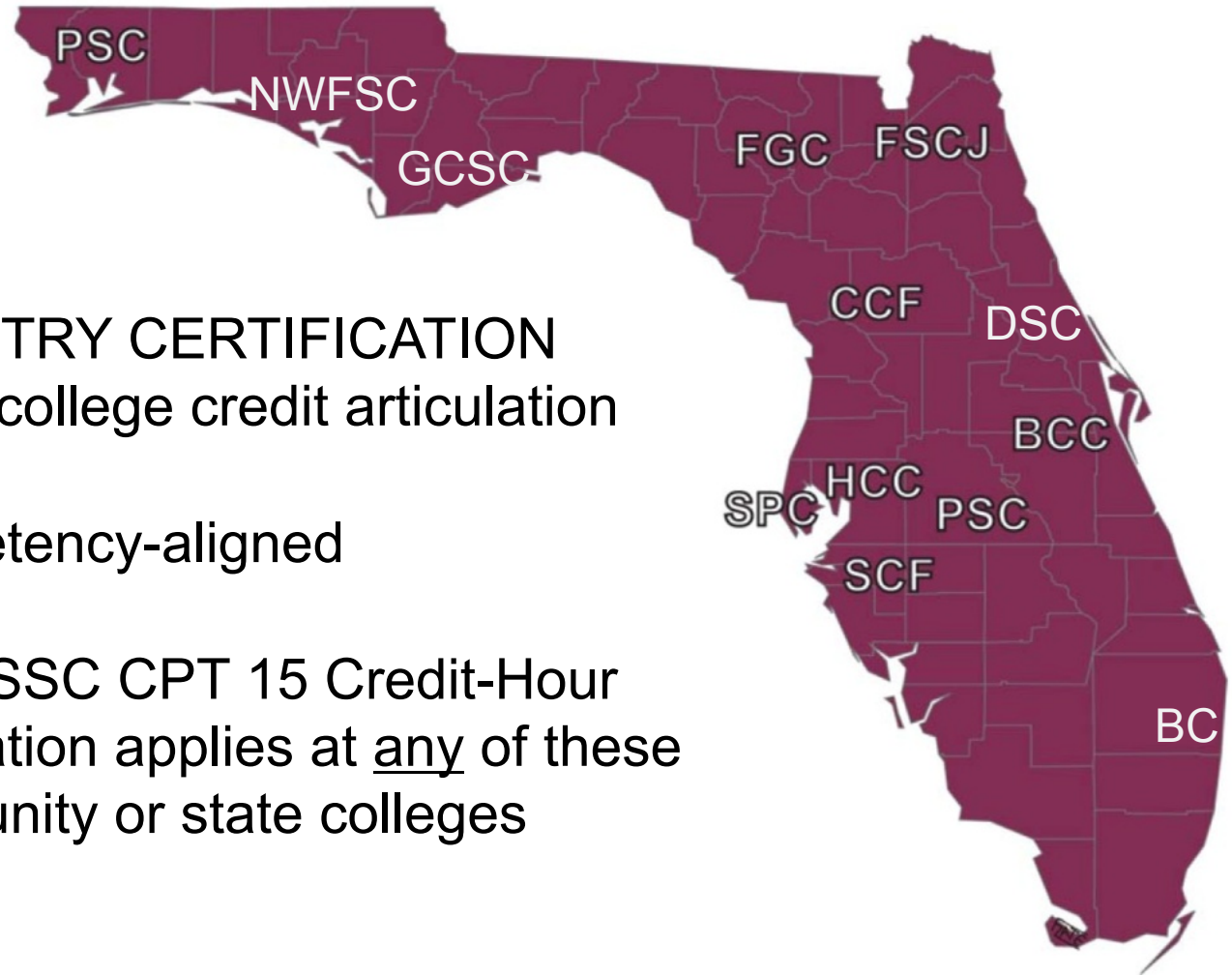
Quality

Biomedical
Systems

Alternative
Energy

Statewide Articulation

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INDUSTRY CERTIFICATION
based college credit articulation

Competency-aligned

The MSSC CPT 15 Credit-Hour
articulation applies at any of these
community or state colleges

Pathways to 4 year degrees

Seamless AS articulation
to BS and BAS degrees
at State Colleges and
Universities



AS ET



BAS
Supervision & Mgmt



BS ET
(DSC)



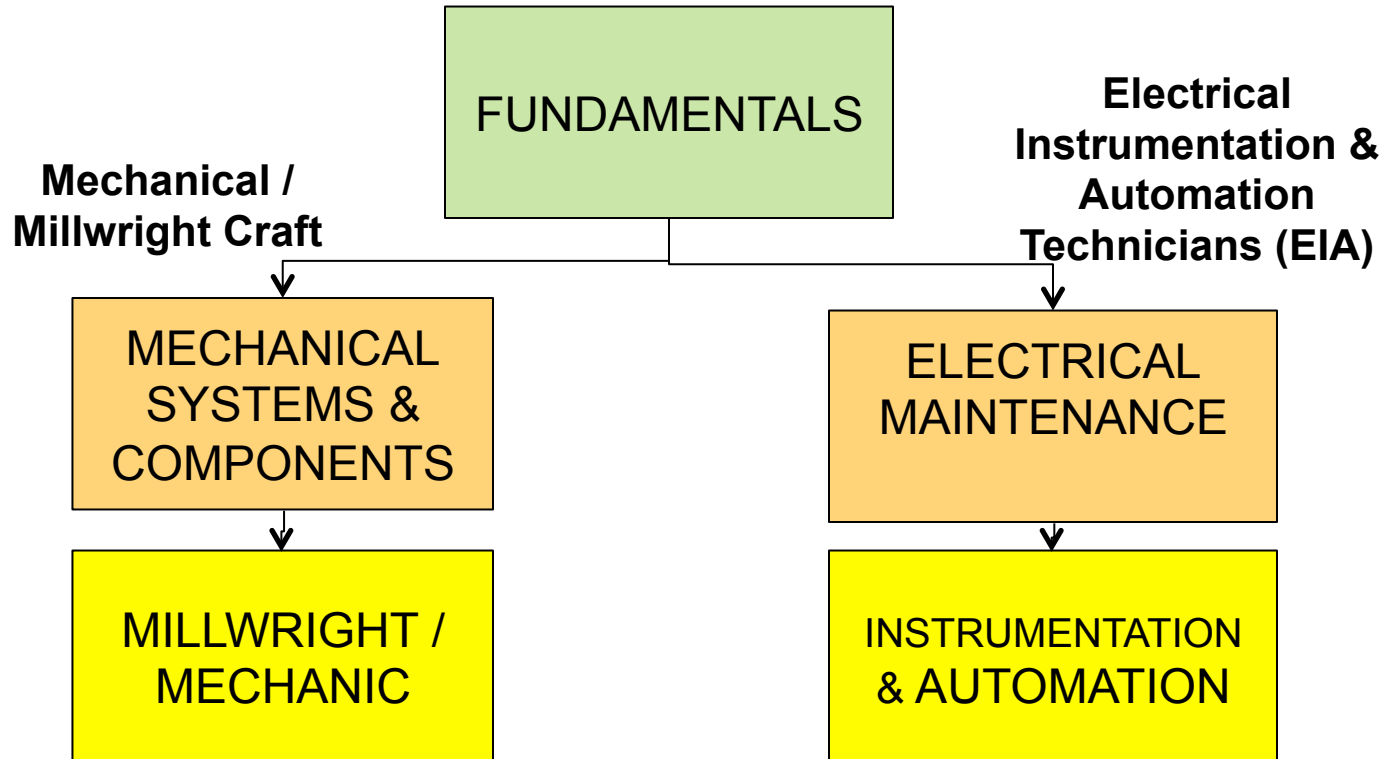
BS EET
(DSC & MDC)



Apprenticeship Program (Mosaic Corp.)



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Apprenticeship Pathways



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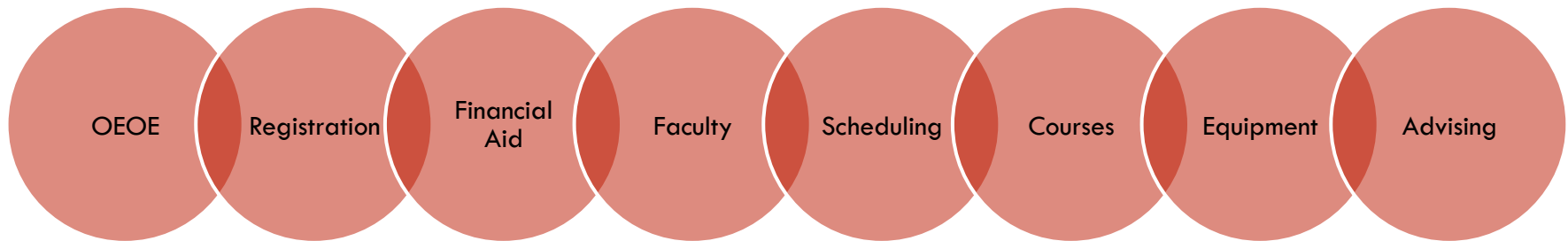
With these credentials in hand the Journeymen apprenticeship graduates can avail themselves of the pathways into college as part of Florida's unified pathway for manufacturing education.

15 Credit Hours for the MSSC CPT statewide articulation
+ 16 Credit Hours in local articulation
= 31 Credit Hours towards an AS in Eng Tech.



OE/OE Challenges

Engineering Technology OE/OE



Modular * Competency-Based * SELF-PACED * OPEN-ENTRY / OPEN-EXIT *
Faculty Mentored * Learner-centered

Unified Educ./Training Pathways

PETEC

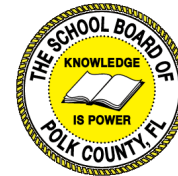
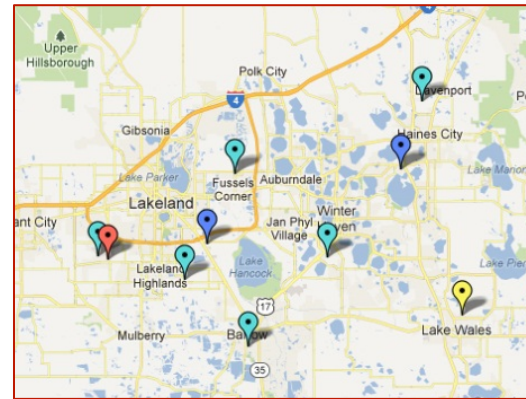
Polk

Engineering

Technologies

Education

Council



Corporate, Professional and Continuing Education

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- **Nearly every community/state college and university offers non-credit training**
- **These programs serve both incumbent and displaced workers**



Unified Educ./Training Pathways

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High School
Career
Academies



Technical
Center
Certificate
Programs



Registered
Apprenticeship



Workforce
Training for
displaced
& incumbent
workers



College
Degree and
Corporate
Training

Industry Certification Alignment & College Credit Articulation

Benefits

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Industry Driven Program Outcomes

Pathways / College Credit Articulation

Statewide Scope

Alignment for all levels of academic and training pathways

Communication

Lifelong Learning Opportunities

Industry Demand

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This system only works if industry creates the “pull” on the system...

- The integration of nationally portable, industry-recognized credentials with educational pathways, leading to postsecondary credentials with real value in the workplace

Thank you!

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Polk State College

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