

# Leveraging High-quality Certifications & Apprenticeships in Evidence-based, Work-based Models



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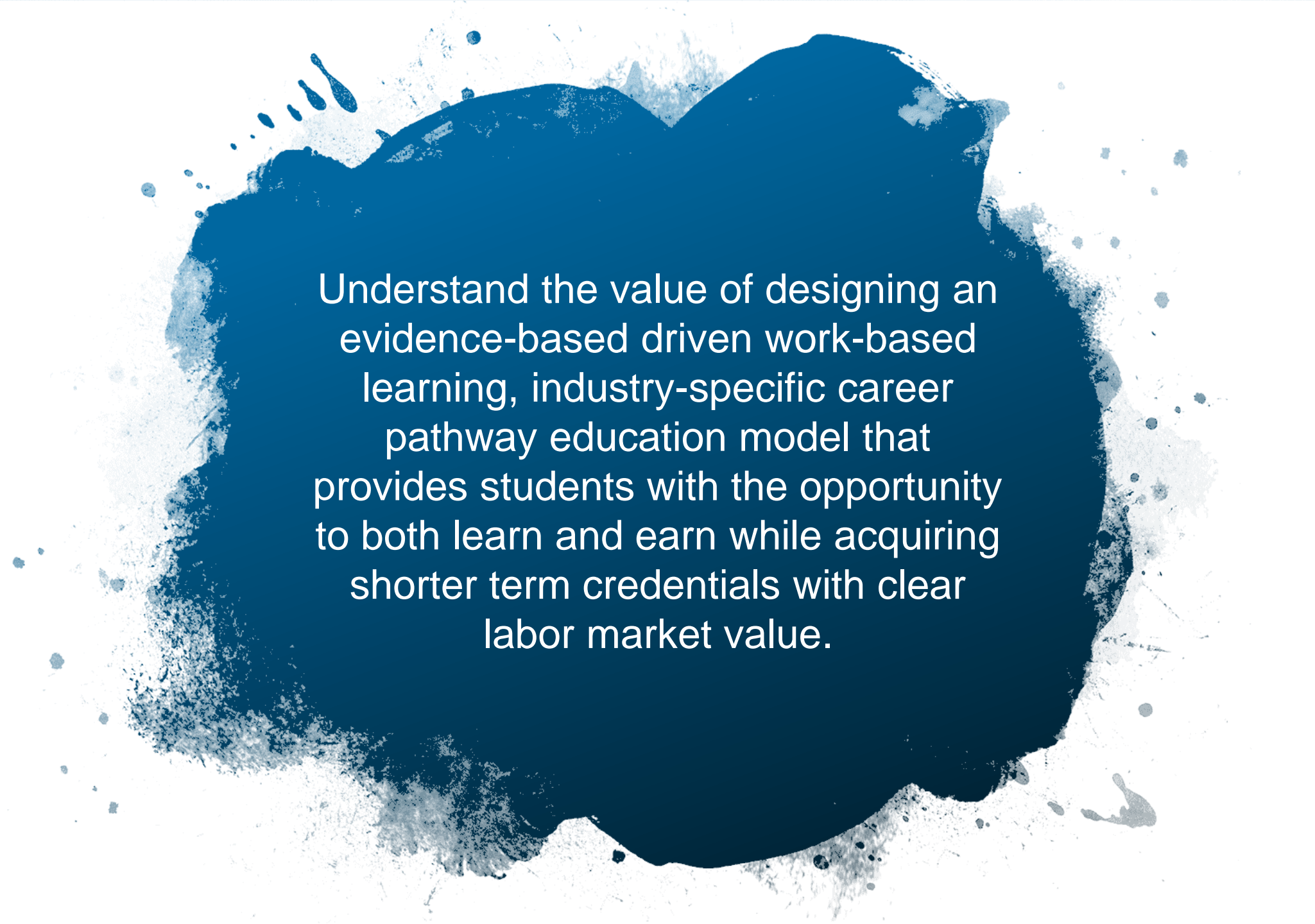
MANUFACTURING  
SKILL STANDARDS  
COUNCIL

**SOUTHWEST**  
TENNESSEE COMMUNITY COLLEGE

**ACT**<sup>®</sup>



Career pathway education models should provide students with the opportunity to acquire shorter term credentials with clear labor market value while both learning and earning.



Understand the value of designing an evidence-based driven work-based learning, industry-specific career pathway education model that provides students with the opportunity to both learn and earn while acquiring shorter term credentials with clear labor market value.

# Southwest Tennessee Community College Partnerships for Educational Services

**Delta Regional Authority (DRA) Grant: Population =  
survivors of domestic violence**

**MSSC Certified Product Technician (CPT) 4.0:  
Safety & Employability**

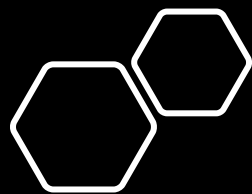
**Juvenile Justice Re-Entry Grant: Population =  
justice involved youth 14-21**

**National Career Readiness Certificate**

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The logo for ACT, featuring the letters "ACT" in a bold, black, serif font. A red swoosh underline is positioned under the letter "A". A registered trademark symbol (®) is located to the upper right of the "T".The logo for Southwest Tennessee Community College. The word "SOUTHWEST" is written in a large, bold, blue, sans-serif font. Below it, the words "TENNESSEE COMMUNITY COLLEGE" are written in a smaller, bold, red, sans-serif font.





# DRA Grant Activities

**First offering of MSSC CPT Safety & Employability Training**

**Cohort 1 - no participants**

**Cohort 2 - Five participants were enrolled and two were retained for the duration**

**Two students successfully completed the CPT training and received the CPT safety & employability certification**

**One student is currently working and interested in a leadership position with current employer**

**One student is schedule to interview with a local food manufacturer in December**

**SOUTHWEST**  
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# Juvenile Re-entry


## ACT® NCRC testing services

- Spring 2017 – Fall 2019  
no testing in 2020-2021 due to Covid
- Over 200 assessments administered
- 64% certification obtainment

## Access to Workkeys Curriculum

Career exploration and educational preview through summer training academies.





Identify the characteristics of a  
quality certification using  
checklist provided in this  
session

# Business Round Table Quality Assurance “Federally Funded” Industry Certifications

## Certifications

- Based on industry-defined, nationally validated, competency-based standards developed in cooperation with a nationally-recognized trade association or other industry body
- Have applied legally defensible validation methods
- Recognized nationwide (national portability) supported by an infrastructure able to deliver related training and assessments

## Programs

- 3<sup>rd</sup> Party Accredited with audits consistent with ISO 17024 (Personnel Certification)
- Include “earn and learn” experiences and attainment of industry-recognized credentials
- Use well-qualified, experienced instructors who are themselves certified
- Assessments delivered under strong security safeguards



1998-2001

Federally mandated as the “Voluntary Partnership” for all of manufacturing to develop industry-led standards, assessments and certifications for front-line workers (entry-level through front-line supervisor) for all manufacturing sectors



Background

2001 Federal Government endorses the MSSC national “Gold” standards involving:

\$9+ million public & private funds

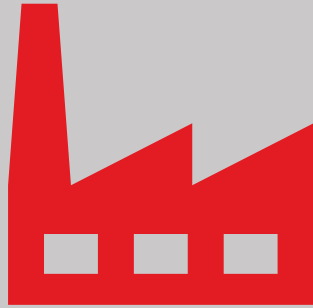
4000 front-line workers

Foundation for CPT

Over 700 Companies

300 Experts

Foundation for CLT



## CPT

Certified Production Technician

All front-line production jobs

6 million



## CLT

Certified Logistics Technician

All front-line material handling and  
distribution jobs

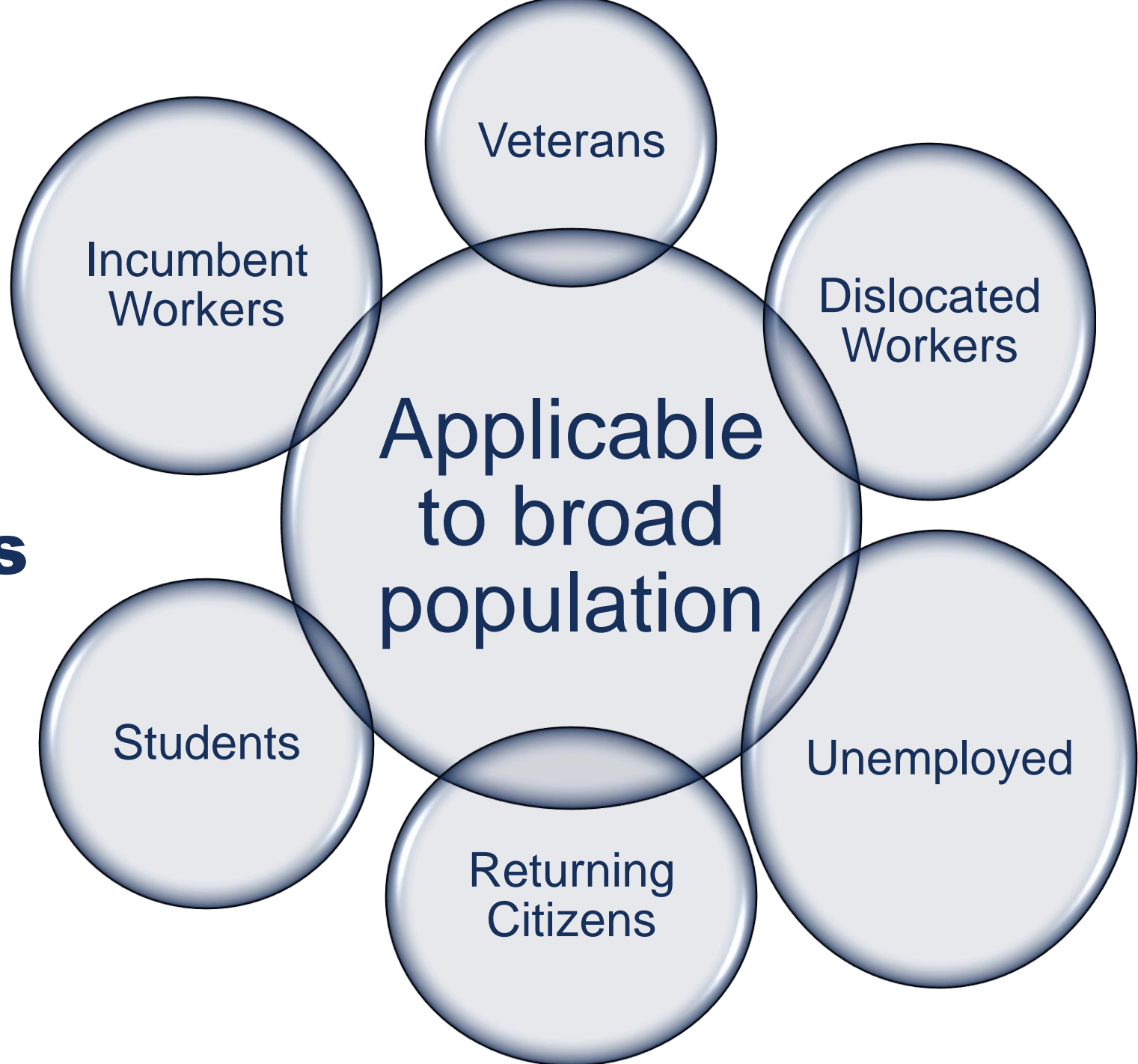
5.3 million



MANUFACTURING  
SKILL STANDARDS  
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# MSSC Certifications







# Participating Federal Agencies

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**MSSC Since  
2001 -Today**



## Certified Production Technician

5 Individual Certificate Assessments

- Safety
- Quality Practices & Measurement
- Manufacturing Processes & Production
- Maintenance Awareness
- Green Production



## Certified Logistics Technician

18 Key Activities

Examples include:

- Storing
- Ordering
- Packaging
- Shipping
- Inventory Control
- Transportation Modes
- Dispatch
- Tracking



## Certified Forklift Technician

20 Key Activities

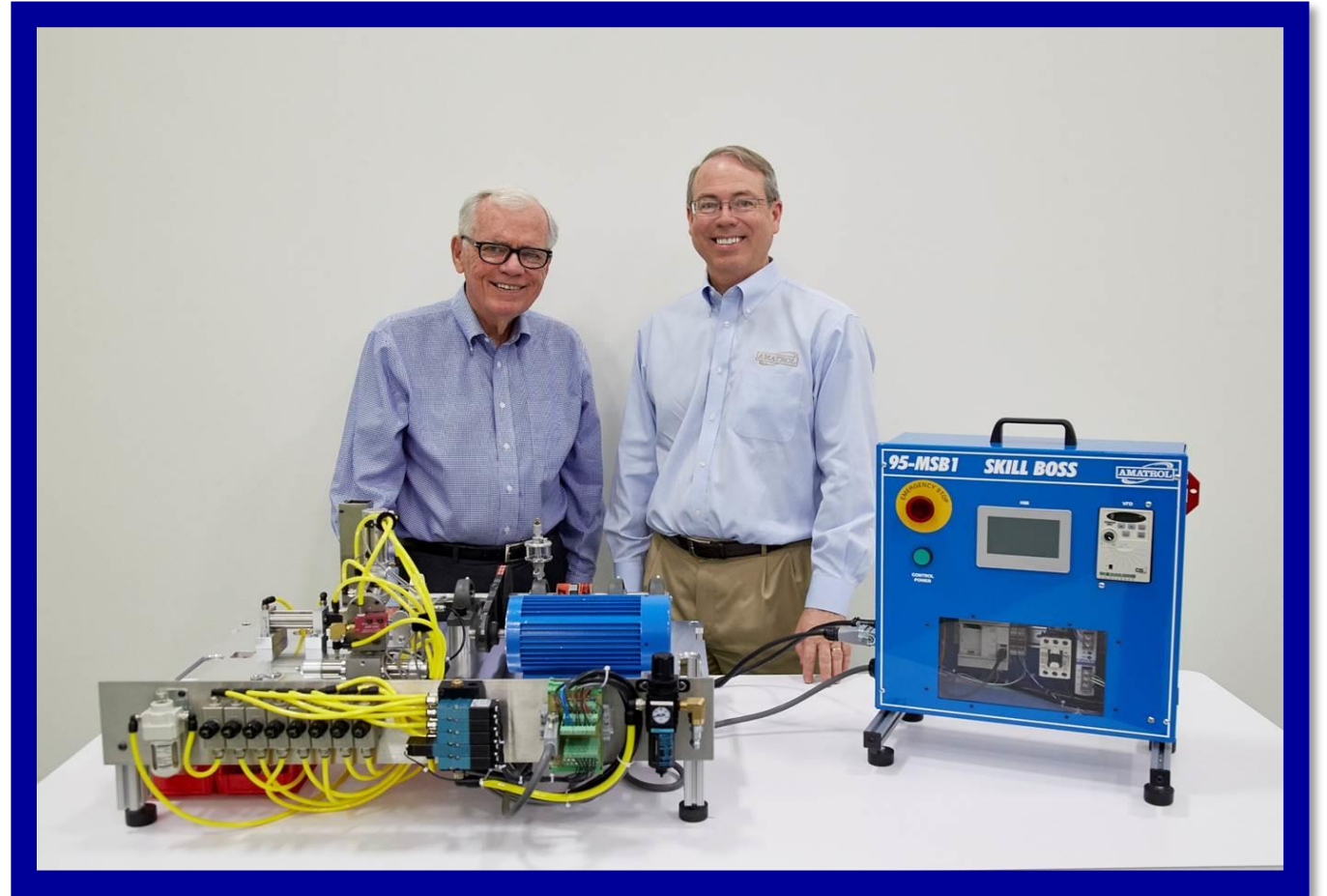
Examples include:

- Operator Orientation
- Lift Truck Fundamentals
- Batteries
- Masts
- Basic Attachments for Lift Trucks
- Transmissions



# CPT + “Skill Boss”

- ❑ 4 CPT “Hands-on” Certificates
- ❑ Full CPT “Hands-on” Certification
- ❑ Covers 55 hands-on skills
- ❑ Integrates with CPT virtual e-learning





# Successful Implementation

Imbed credentialing programs in secondary and post-secondary

For-credit

Dual-credit

Non-credit

Approved state lists

Public & Private Partnerships

Associations/ Chambers

ED Groups

City & State Governments

Industry

Secondary

Post-secondary

WIBs

Charity Organizations

Goodwill

United Way

Easter Seals

Salvation Army

# Successful Implementation

Department of Corrections—CTE for incarcerated = tax payers not tax burdens (DOL Bonding Program)

Imbed credentials into pre-apprenticeships and full apprenticeships

WIBs combine unemployment compensation with skills training

State legislation to reward CTE credentials

Veterans Programs

# **MSSC CPT Secondary Intern “Academies” Model**

## **High School Students**

- ❑ **NCRC Silver**
- ❑ **Earn the CPT Safety and Quality Certifications**
- ❑ **OJT: students perform 2 Summer Internships**
- ❑ **Employers build relationships with students**
- ❑ **Employers contribute \$1000 to Academy**
- ❑ **Students earn \$1800 per/internship**

**Hepburn” GPS EDUCATION PARTNERS Leading MSSC CPT Model—  
”Andy Hepburn**

# **MSSC CPT DOL Approved Apprenticeship Programs**

## **Pre-Apprenticeship:**

- **Secondary & Opportunity Youth (WIOA funded)**
- **Imbed ACT NCRC “Silver Level”**
- **Related CPT Training: 80 hours junior year and 80 hours senior year**
- **On the Job Learning (OJL): 280 hours (8 weeks) in the summer of junior year and 280 hours (8 weeks) in the summer of senior year, for which the student will receive a stipend from the participating employer.**
- **A MSSC Certificate of Completion at the end of the pre-apprenticeship**



# MSSC CPT DOL Approved Apprenticeship Programs cont'd (WIOA funds)

## Industrial Manufacturing Technician (IMT): (3000 hrs.)

First 260 hrs. “Related Instructional Component”:

- NCRC “Silver Level” math and English
- CPT Certification
- Communication & Teamwork

Full IMT Program:

- Customize for any mfg. sector
- Operate industrial production related equipment,
- Work with manufacturing related tools,
- Perform work processes related to a wide variety of manufacturing settings.




# Characteristics of a Quality Certification Checklist

## Certifications

- Based on industry-defined, nationally validated, competency-based standards developed in cooperation with a nationally-recognized trade association or other industry body
- Have applied legally defensible validation methods
- Recognized nationwide (national portability) supported by an infrastructure able to deliver related training and assessments

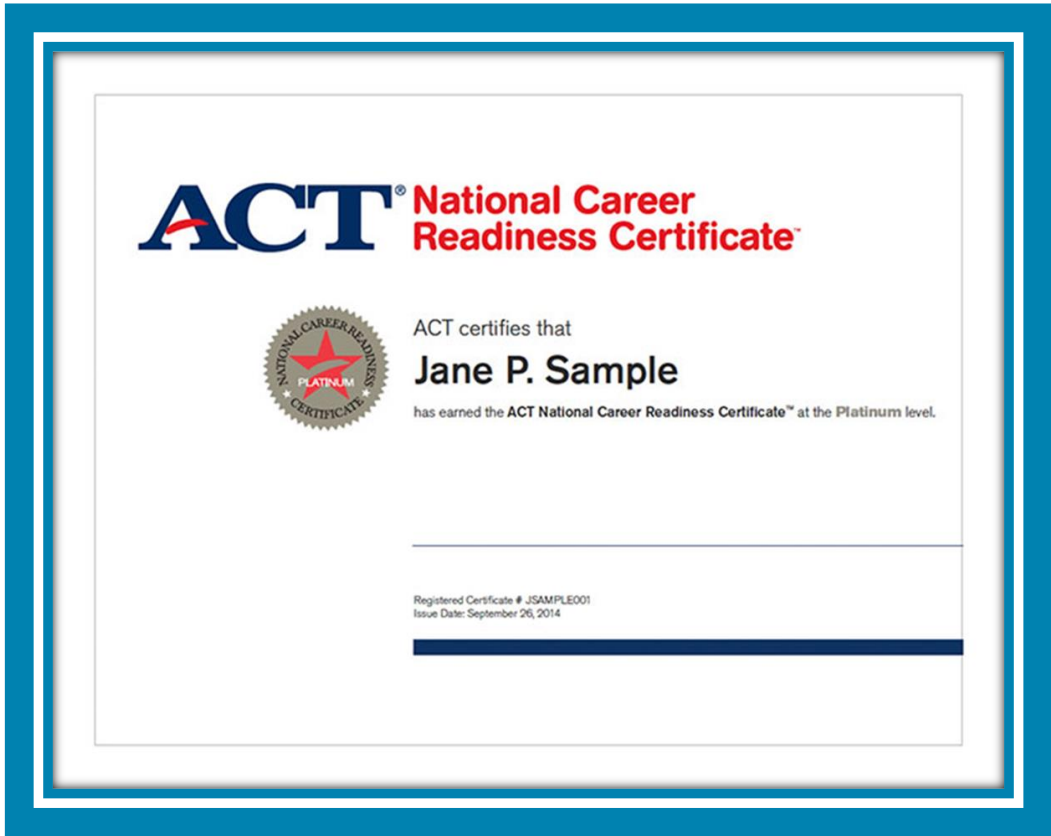
## Programs

- 3<sup>rd</sup> Party Accredited with audits consistent with ISO 17024 (Personnel Certification)
- Include “earn and learn” experiences and attainment of industry-recognized credentials
- Use well-qualified, experienced instructors who are themselves certified
- Assessments delivered under strong security safeguards



Align and validate  
stackable credentials  
using nationally  
recognized methods

# Fast Facts



**4.5M**  
NCRCs Earned

**29**  
States

**22,793**  
Job Profiles Completed

**455**  
Participating  
Counties

**24,325**  
Employers Supporting





**Level 3**

**20%**

- Auto Body Repair Technician
- Veterinary Technician
- Industrial Truck & Tractor Operators
- Pharmacy Aide
- Food Preparation Workers



**Level 4**

**71%**

- Robotics Technician
- Informatics Nurse Specialist
- Civil Engineering Technician
- Machinist
- Logistics Manager



**Level 5**

**93%**

- School Counselor
- Pharmacy Technician
- Semi-Conductor Processor
- Computer Programmers
- CNC Machine Tool Programmers



**Level 6**

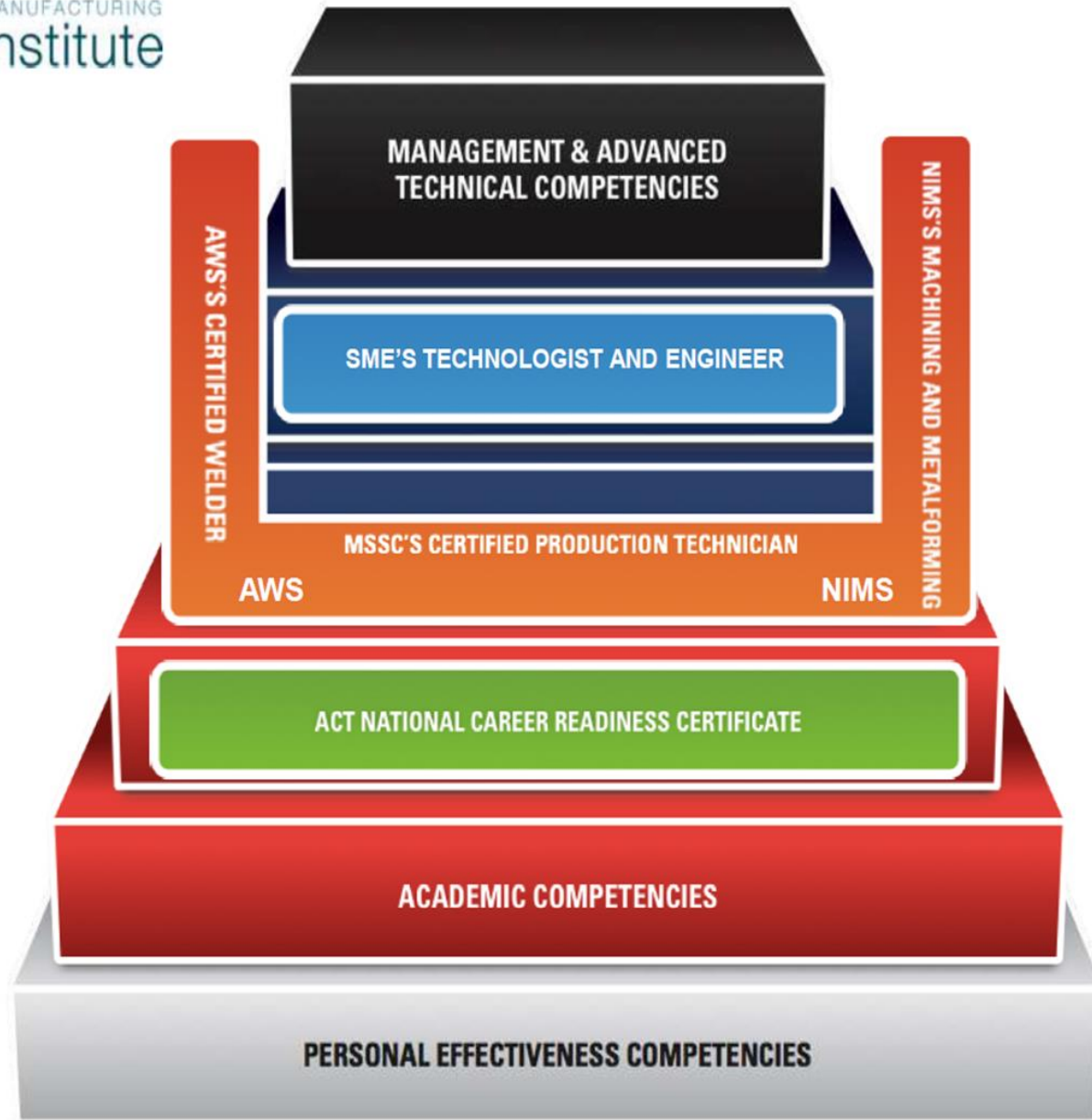
**98%**

- Robotics Engineer
- School Psychologist
- Physician Assistant
- Transportation Planners
- Product Safety Engineers

**Minimum  
Level Score on all 3  
assessments**

**% of  
Occupations**

**Sample  
Occupations**





## What is Curriculum Profiling?

# Curriculum Profile

Identify Learning Objectives

Identify Knowledge, Skills, and Abilities

Identify WorkKeys skills and levels for entry and exit from the program



## Curriculum Analysis Report

Manufacturing Skill Standards Council's  
Certified Production Technician (CPT)  
Curriculum



## Curriculum Analysis Report

Manufacturing Skill Standards Council's  
Certified Logistics Associate (CLA) &  
Certified Logistics Technician (CLT)  
Curriculum



**Curriculum  
Profiling  
&  
Stackable  
Credentials**

# MSSC: Curriculum Profile Results

## MANUFACTURING PROCESSES & PRODUCTION

Objective/ Skill		Applied Math	Graphic Literacy	Workplace Documents
OBJ 9	Describe how to calculate torque given an application.	X	X	
SKILL 3	Calculate torque given an application.	X		
OBJ 10	Define the Law of Moments.			X
OBJ 11	Describe how to calculate the moment caused by a force.	X		X
SKILL 4	Calculate the moment caused by a force.	X		
<b>SEGMENT 4 LEVERS AND MECHANICAL ADVANTAGE</b>				
OBJ 12	Define a lever and explain its importance.			X
OBJ 13	Describe the operation of three types of levers.			X
OBJ 14	Describe the concept of Mechanical Advantage.			X
OBJ 15	Describe how to calculate the mechanical advantage of a lever.	X		X
SKILL 5	Calculate the mechanical advantage of a lever.	X		
SKILL 6	Measure the mechanical advantage of a lever.		X	
<b>Unit 39: Mechanical Linkages</b>				
<b>SEGMENT 1 FRICTION</b>				
OBJ 1	Define friction and explain its importance.			X



# MSSC: Curriculum Profile Results

## Applied Math for CPT Modules

- Safety didn't require any math
- Manufacturing Process and Production required Level 4 for entry and students should be at Level 5 at completion

## Examples:

- Determine the hours worked:  $T = (H_s \times D) \times (H_B \times D)$
- Calculate machine availability:  $MA = T_A - T_{SD} - T_{USD}$
- Estimate product cost:  $C_P = C_{mat} + C_L + C_O$   
 $N$
- Calculate productivity:  $P = \frac{N}{T}$
- Calculate mechanical advantage:  $MA = \frac{W}{F} = \frac{L}{H}$


### Skill Level Recommendations for Entry into the CPT Individual Certificate Modules

WorkKeys Skill	Workplace Documents	Graphic Literacy	Applied Math
Skill Level Range	3-7	3-7	3-7
Safety	4	3	Not Required
Quality Practices & Measurement	4	4	4
Manufacturing Processes & Production	3	4	4
Maintenance Awareness	3	4	4
Green Production	4	4	3
Overall Entry Level	4	4	4

### Skill Level Recommendations for Exit from the CPT Individual Certificate Modules

WorkKeys Skill	Workplace Documents	Graphic Literacy	Applied Math
Skill Level Range	3-7	3-7	3-7
Safety	4	3	Not Required
Quality Practices & Measurement	4	4	4
Manufacturing Processes & Production	5	6	5
Maintenance Awareness	5	6	6
Green Production	4	5	4
Overall Entry Level	5	5	5

# MSSC: Curriculum Profile Results



Identify best practices for embedding  
credentials in work-based learning  
programming that results in improved  
performance and to validate  
readiness for  
learners with barriers to  
education/employment.

## **DRA Grant Program Design**

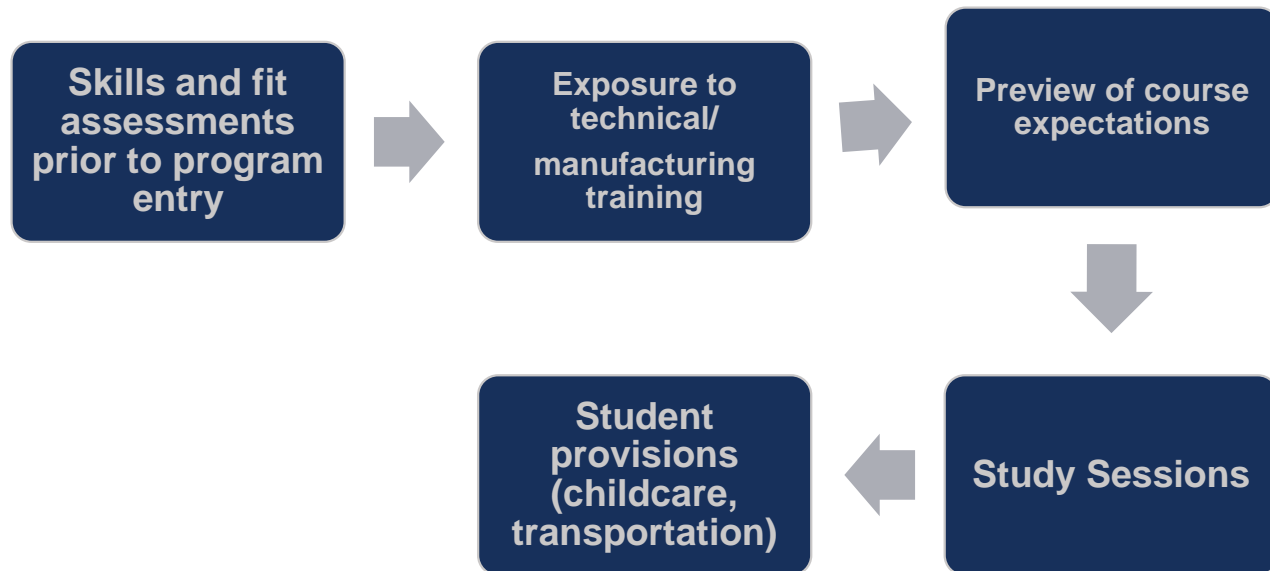
**A life-changing experience!**



### **Participants were:**

- **Recruited from local partners**
- **Given four-weeks of soft skills training**
- **Introduced to food manufacturing via popcorn operations**
- **Received teacher-led Certified Production Technician (CPT) training**
- **Provided online access to CPT content**
- **Given a tour of college's technical programs with access to technologies instructors**
- **Celebrated during a completion ceremony**

## Lessons Learned for Future Cohorts





# Juvenile Justice Data

## Year 1

10 students  
earned  
certification

## Year 2

25 students  
earned  
certification

## Year 3

87 students  
earned  
certification

## **Lessons Learned for Future Engagement**







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