

TAACCCT Round II

*Making the Future: The Wisconsin Strategy*

Grant TC-23775-12-60-A-55

# A Companion to BEST PRACTICES & LESSONS LEARNED

September 2016

This workforce solution was funded by a grant awarded by the U.S. Department of Labor's Employment and Training Administration. The solution was created by the grantee and does not necessarily reflect the official position of the U.S. Department of Labor. The Department of Labor makes no guarantees, warranties, or assurances of any kind, express or implied, with respect to such information, including any information on linked sites including, but not limited to, accuracy of the information or its completeness, timeliness, usefulness, adequacy, continued availability, or ownership. This is an equal opportunity program. Assistive technologies are available upon request and include Voice/TTY (711 or 800-947-6644).



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## APPENDIX A: College Contacts

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Wisconsin Indianhead Technical College	Mary Ann Pebler	maryann.pebler@witc.edu

## APPENDIX B: Best Practices Surveys

### Curriculum Best Practices Report Survey

College:

Name:

Date:

1. Topic you are reporting on? (Local Certificates, New Technical Diplomas, Additional and/or alternate class times, Accelerated cohort model, Other)

2. In what ways has this impacted your program, both positive and negative?

3. What things, both positive and negative, have come about from this change that weren't anticipated?

4. How will you plan to sustain the changes beyond the end of the grant?

5. Include any feedback from faculty on this change

6. Include any feedback from students on this change

7. Include any feedback from advisory committees and employers

8. Additional Comments:

**Best Practices Phase 2: Student Success Survey Response**

**College:**

**Name and Title of Person Completing the Survey:**

**Topic\*: Select One: (Academic Coaching, Bridge/ABE, Team Teaching/Coordinated Curriculum, Work Readiness/Career Preparedness, Internships/OJT)**

**In what ways has this impacted your program, both positive and negative?**

**What impact, both positive and/or negative, came about from this change that wasn't anticipated?**

**Include any positive and/or negative comments or impact from faculty, staff, or administration on this change:**

**Include any positive and/or negative comments or impact from students on this change:**

**Include any positive and/or negative comments or impact from advisory committees & employers:**

**How do you plan to sustain the changes beyond the end of the grant?\***

**Additional Comments:**

## Best Practices Phase III: Articulation Agreements, Employer Engagement, & Sustainability

Responses are due via Google Survey by Friday, December 18<sup>th</sup>

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College:

Name and Title of Person Completing the Survey:

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**\*\*PLEASE ANSWER ALL QUESTIONS\*\***

### Topic 1: Articulation Agreements

- 1 Do you have any official articulation agreements with other WTCS colleges relating to a grant-funded manufacturing course(s), credits, or certificate(s)?  
YES            NO
  - If yes, please list which institution(s), program(s), agreement type, a brief description, and indicate if new as a result of the grant
  - If no, please explain why
- 2 In the submitted grant Work Plan to DOL, Bellevue University was noted as a preferred four-year degree provider that will articulate the consortium's developed pathways. Does your college have a specific articulation agreement with Bellevue University for your grant funded programs?  
YES            NO
  - If yes, list the program, and describe the articulation agreement.
- 3 Do you have any official articulation agreements with other educational institutions with your grant-funded manufacturing course(s), credits, or certificate(s)?  
YES            NO
  - If yes, please list which institution(s), program(s), agreement type, a brief description, and indicate if new as a result of the grant
  - If no, please explain why
- 4 How have you promoted any articulation agreement(s) with your manufacturing students? e.g. included a four-year degree option on your roadmap, distributed outreach materials, etc.
- 5 If you do have an articulation agreement in place, in what ways has it impacted your program?
- 6 Have you, or will you, pursue additional articulation agreements as a result of this grant?  
YES            NO
  - If yes, please list which institution(s), program(s), agreement type, and a brief description
- 7 What obstacles, if any, prevent your manufacturing program from developing new articulation agreements?
- 8 Additional comments

## Topic 2: Employer Engagement

- 1 In what specific ways have you changed your practices or approach to employer engagement as a result of the grant?
- 2 What impact has this approach to employer engagement had on your grant activities?
- 3 What challenges have you encountered that impact productive employer engagement?
  - What was done to resolve these?
  - If no action has been taken, what has held you back?
- 4 Does your college plan to replicate these practices in other areas?  
YES            NO
  - If yes, which approach and where?
- 5 What is your college's plan to sustain employer partnerships developed during the grant?
- 6 What new employer engagement practices will you pursue after the grant?
- 7 Additional comments

## Topic 3: Program Sustainability

- 1 Considering grant components specific to your college's Work Plan and programs, describe which elements will be sustainable beyond the grant and how. ***This is critical information. Please describe all the components that are sustainable in any way.***
- 2 Considering grant components common to the consortium describe which elements will be sustainable beyond the grant and how. Examples of common components include: STM machine, Gamma+ flashcards, career pathway Roadmap, etc.
- 3 Have you, or will you, use grant data to justify the need to sustain grant-funded programming, positions, etc.?  
YES            NO
  - If yes, which ones and how?
- 4 What are your plans for using all grant-funded equipment after the project has ended?
- 5 Additional comments

## Best Practices Phase IV: Credit for Prior Learning

Responses are due via Google Survey by Thursday, February 25

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College:

Name and Title of Person Completing the Survey:

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**\*\*PLEASE ANSWER ALL QUESTIONS\*\***

### Topic: Credit for Prior Learning

#### CPL Process Maps

- 1 Describe the method of creating your college's CPL process maps. Be sure to address the questions below.
  - Who were the stakeholders involved?
  - What did you learn from that initial process map development?
  - How have you changed or implemented your process map? Are you still using it?
  - How did this process help in advancing the CPL efforts within your college?

#### Policies, Processes, and Practices

- 2 Have your college's CPL policies, processes, and practices changed at your college, as a result of the grant?  
YES      NO
  - If yes, please describe the practices, lessons learned, and how the policies and processes have changed.
  - If no, please describe the current state of your CPL policies, processes, and practices. Are you pursuing future changes?

#### Leadership

- 3 Do you have a single, dedicated staff member leading your CPL efforts?  
YES      NO
  - If yes, please describe how this position was secured.
  - If no, please describe if you are pursuing this position and your strategy.

#### Implementation of Grant-Funded Training

- 4 Your college has attended a variety of CAEL led training sessions, webinars, and national conferences. How is your college implementing this knowledge into practice? List the training received to the new practice, where possible.
- 5 How have you engaged staff, from advisors to executive leadership, in your CPL efforts?

**Future Plans**

- 6 What is your college's action plan to scale CPL efforts over the next two years? List any activity or policy change, etc. that is being seriously considered.

**Other**

- 7 Additional comments

## APPENDIX C: Consortium Colleges' Impact Stories

*Making the Future: The Wisconsin Strategy* consortium colleges were asked to compile an “impact story” on grant-funded program change(s) of their choice to demonstrate the effects, both short- and long-term, the \$14.9 million had within the state of Wisconsin. The narrative briefly highlights the grant-funded activities within their college, the changes the grant made within the program area and throughout the campus, and information on those who have been directly impacted, such as employers, faculty, and students. Following are the unabridged narratives that were submitted by each consortium member. Minor changes to spacing and design have been made for document consistency.

## Blackhawk Technical College (BTC)

### TAACCCT Grant Narrative

Blackhawk Technical College's key grant program change was to replace the existing one-year Industrial Mechanic (IM) program with a two-year Industrial Maintenance Technician program. The concept of a two-year technical diploma was in response to an Industrial Mechanic needs assessment of local industry employers whom conveyed the need for students to have a deeper level of knowledge in key IM technical areas.

Another grant program change was to add an additional section for students in response to employer demand for additional IM workers. We made available to students a day and an evening section. The addition of the new section enabled the program to expand from a capacity of 15 students per semester to 30.

A basic skills instructor was added to the IM program with the intent to assist students with low math skills to gain the math competencies needed in the industrial mechanical field.

#### **Curriculum Revisions and Embedded Certificates**

After the completion of the Industrial Maintenance Technician needs assessment, research and development began (program review, investigation, and program implementation) thereby creating a two-year Industrial Maintenance Technician Technical Diploma. The Industrial Maintenance Technician Program began August 24, 2015.

The two-year Industrial Maintenance Technician program is designed to provide the multi-craft skills needed to maintain complex and integrated manufacturing systems. The program provides students with practical hands-on experience in electricity, programmable logic controllers, maintenance machining, hydraulics, pneumatics, conveyor systems, mechanical maintenance, equipment maintenance, welding, safety, rigging, and maintenance management. This program provides a broad base of skills that are suitable for initial or upgrade training.

<b>Two-Year Industrial Maintenance Technician</b> <b>Technical Diploma Total Credits in Program: 55</b> <small>("Student Success" is a 1-credit course that is an institutional requirement for all students)</small>			
1 <sup>st</sup> Year, 1 <sup>st</sup> Semester	1 <sup>st</sup> Year, 2 <sup>nd</sup> Semester	2 <sup>nd</sup> Year, 1 <sup>st</sup> Semester	2 <sup>nd</sup> Year, 2 <sup>nd</sup> Semester
Machining Prints	Conveyor Systems	Fluid Systems	Electrical Fundamentals
Maintenance Milling	Basic Welding for Industrial Maintenance	Pneumatic Systems	Electrical Control Systems
Industry Maintenance Metallurgy and Metrology	Mechanical Power Transmission Systems	Facility Prints	PLC's
Lathe Fabrication Processes	Valves, Gaskets, Seals	Maintenance Management	Electro-Mechanical Prints
Oral/Interpersonal Communication	Machine Setup and Installation	Human Relations in the Industrial	Shop Mathematics I or II
Shop Mathematics I or II	Shop Mathematics I or II	Oral/Interpersonal Communication	
Shop Mathematics II	Shop Mathematics I/II	Shop Mathematics I or II	

The Industrial Maintenance Technician Program will provide four embedded certificates for students which will provide benchmarks on the skills attained within their training/study and assist in their ability to obtain employment.

During the October 22, 2014, Industrial Mechanic Advisory Committee Meeting, the embedded certificates were proposed to the committee members. The Advanced Manufacturing and Transportation Dean stated the following: *"There is a need to get people into the workforce with minimum entry-level skills. Some students may not be able to complete a program's whole curriculum or leave after taking only one or two classes. Hiring managers need to know that an individual is competent and has the appropriate skills. The proposed embedded certificates would be state-approved curriculums, vetted by industry input, and contain recognized skills and rigor. The state [Wisconsin Technical College System Office] requires that the certificates are attainable in one year and lead to viable entry-level employment. The goal is to get people to work and keep a competitive, educated workforce."*

The question was asked, *"Within your industry, could someone be employable with these certificates in an entry level job? Would you support this initiative?"* The following employer representatives responded:

- SSI Technologies Inc.: Provide an opportunity; a starting point for hire. Good on the resume.
- Get employee in the door with one viable skill and can grow within.
- HUSCO: Clearly give candidate a leg up and advantage over 99% of the applicants.
- SubZero: Could mean a \$1 - \$2 an hour pay raise. Match better to positions. Good incentive.
- Panoramic: Core fits everything. Hits the mark.

A motion was made to support the development of these proposed four embedded certificates. The motion was carried unanimously.

Embedded Certificates			
Maintenance Machining Certificate Course	Maintenance Mechanical Systems Certificate Course	Maintenance Hydraulics and Pneumatics Certificate Course	Maintenance PLC and Electricity Certificate Course
Machining Prints	Conveyor Systems	Valves, Gaskets, Seals	Electrical Fundamentals
Maintenance Milling	Basic Welding for Industrial Maintenance	Shop Mathematics I	Electrical Control Systems
Industrial Maintenance Metallurgy and Metrology	Mechanical Power Transmission Systems	Fluid Systems	PLC's
Lathe Fabrication Processes	Machine Setup and	Pneumatics Systems	Electro-Mechanical Prints
Shop Mathematics I	Shop Mathematics I	Shop Mathematics II	Shop Mathematics I
Shop Mathematics II	Shop Mathematics II		Shop Mathematics II

The Industrial Maintenance Technician Program started in August of 2015. It is conceivable that program students could complete up to three embedded certificates; however, all currently enrolled program students intend to complete the two-year technical diploma.

### **Team Teaching/Coordinated Curriculum**

Blackhawk Technical College has incorporated integrated basic skills into previous and current curriculum delivered in a team-teach format. The IMT program instructor is paired with the basic skills (Math) instructor and are in the classroom at the same time. The basic skills instructor team teaches with two IMT program instructors in day and evening sections.

The positive aspects of team teaching we learned are:

- Open communication
- Working in a team promotes responsibility
- Encourages creativity and planning
- Teaches respect
- Builds community among teachers
- Complements one another

The negative aspects of team teaching we learned are:

- Personality conflicts
- The lack of communication
- Afraid of losing control
- Unwilling to work as a team

### Student Testimonial

An evening IMT student made the following statement in regards to team teaching, *“I believe team teaching is an excellent thing to help students better understand things in the classroom. The evening IMT instructor and the basic skills instructor do a very good job in doing so. When one of them doesn’t know the exact answer the other one is right there to give that right answer. The basic skills instructor will show me the step by step on the problems and when he is finished the evening IMT instructor will jump in and will mention that “Hey there is a more quick and easy way of doing this and this is how you do it.” Also when the basic skills instructor is on a topic the evening IMT instructor will explain where and when in the field I will be needing this information. The evening IMT instructor does an excellent job teaching the mechanics of the classes, and the basic skills instructor does an excellent job of teaching the math portion of it. I do like the team teaching and hope to see it in future classes.”*

### Student Evaluations

The embedded basic skills instructor stated the following, *“As part of the program, in addition to pre- and post-TABE tests of students, I also administer a Student Evaluation of Embedded Math Instruction in the Industrial Mechanic program. Overall, students found the embedded math instruction to be helpful, and they found the additional math instruction to be helpful in their understanding of the program material. There were comments both to expand the time I had in the classroom, as well as spending more time with fractions, as well as to restrict my teaching solely to applied, program-specific math, and to math that a Mechanic would use, not that an Engineer would use.”*

Student Evaluation of the Embedded Math Instruction Spring 2015					
Day and Evening Section Student Responses (Number of Respondents 17)	Scale: 1 = Great Help – Little Help = 5				
Questions:	1	2	3	4	5
How helpful did you find the embedded math instruction?	11	4	2	0	0
How helpful was the blackboard site?	3	4	7	1	2
How helpful were the optional math worksheets?	7	7	3	0	0
How helpful was the math instruction to your understanding course content?	10	5	2	0	0
How helpful is this additional math instruction to the overall Industrial Mechanic program?	11	3	3	0	0
How helpful do you believe the additional math skills will be in getting or retaining employment?	9	4	4	0	0

Additional evidence of student feedback can be found in responses to the following student evaluation question: Are there any areas of the math content that would like to see taught differently? If so, what way?

Day IMT student comment:

1. *To tell the other math instructors for college Math to teach the same thing.*

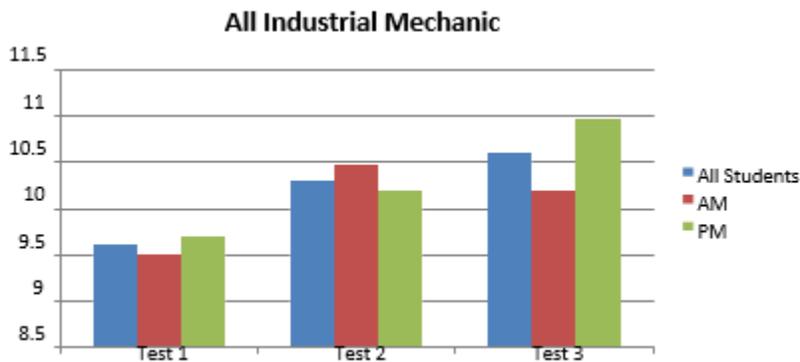
Evening IMT students comment:

1. *Instructor did a great job of using math to possible situations with Industrial Mechanics.*
2. *No, instructor does a fine job.*

**Test for Adult Basic Education (TABE)**

The improvement in the basic math skills identified by the Test for Adult Basic Education (TABE) test results is evidence of the positive influence embedded math has had on the IM/IMT program. The Test for Adult Basic Education is a diagnostic test used to determine a person’s skill levels and aptitudes, such as reading, math, and English. Pre- and post-TABE testing of students during the initial semester has created the opportunity to measure math skill improvement.

The graph below represents the end-of-year report on the embedded math function within the Industrial Mechanic program for the 2014-15 school year. The table summarizes TABE test results on both the morning and the evening cohorts (full- and part-time students). The TABE test provides results in grade-level equivalents in the areas of Basic Computation and Applied Math. These results are combined to form a total score, which is a combined average of the two (the total score is summarized). The maximum TABE score is 12.9, which is generally interpreted as the math skill of a proficient graduating high school *senior*, who has been taking the grade-appropriate math sequence all along.



**Math Skills**

In the new IMT program, shop math will be taught instead of College Math and will be a co-requisite with program courses in the students’ first semester enrollment. By teaching shop math in the first semester, students will have a common base of math skills to apply throughout the program. This will allow instructors to work on more program-specific applied math, as opposed to making up for basic math deficits on the part of many of the students.

The Industrial Mechanic Advisory Committee members and local employers are in favor of enhancing the math skills of our students. The January 2014 Industrial Maintenance Technician Needs Assessment Survey asked local employers if the following Related Math is an important IMT skill. Sixteen respondents answered:

Skills	Strongly Agree	Agree	Neither Agree or Disagree	Disagree	Strongly Disagree
Related Math	3 (18.8%)	10 (62.5%)	3 (18.8%)		

## Internship

Blackhawk Technical College has created a new course that allows the student an opportunity to take part in an internship with local employers. The objective in the design of this new course was to create a structured program for internships and also to teach soft skills. At the April 11, 2014, Industrial Mechanic Advisory Committee a discussion took place with the committee members regarding the importance of employees having soft skills, importantly communication skills. Also, a structured course will generate credits for the students.

- *Human Relations in the Industrial Setting* – This course is designed to give students insight into how an individual's behaviors and abilities affect their relationships with others at work and with customers. Areas stressed include presenting a professional image in seeking employment, developing a positive work attitude, reliability on the job, and an awareness of personal adjustments needed to succeed in the workplace. During this course, students will engage in an internship opportunity on or off campus.

Blackhawk Technical College's Internship Coordinator had been working with instructors and employers to foster internships specifically to the Industrial Maintenance Technician program.

There have been internship opportunities with a number of employers:

- Frito Lay
- Scott Forge
- SSI Technologies
- Sub-Zero

Frito Lay's Maintenance Mechanic Internship program in Beloit, Wisconsin, is designed to provide students an opportunity to work side by side with experienced mechanics while gaining hands-on experience in rebuilding, repairing, troubleshooting, fabricating, and building industrial equipment. The program will last one semester with the potential for additional semesters. The ultimate goal is to prepare students for full-time employment with Frito Lay as a maintenance mechanic. The program will be designed to match work tasks with current or previous courses taken. The successful candidate will work 16 to 24 hours a week in an industrial maintenance environment at the rate of \$18.00/hr.

The table below is Frito Lay's evaluation of two Industrial Mechanics students that participated in the Maintenance Mechanic Internship during the summer of 2014.

### Frito Lay Internship Evaluations – Summer 2014

**Rating Scale:**

0 = Not Applicable: No observation opportunity to date

1 = Beginning: Given some opportunities, the student has not yet demonstrated the skill

2 = Developing: Basic skills show in work

3 = Competent: Average skills show in work

4 = Accomplished: Outstanding skills show in work

Student	Communicate Professionally	Uses Appropriate Technology	Works Effectively in Teams	Demonstrates Professional Work Behavior	Shows Respect for Diversity	Solves Problems Efficiently	Leads by Example	Supervisor Comments	Overall Performance Rating	Would you hire this person?	Host another BTC Intern?
Student 1	5	4	5	5	5	4	5	Very talented mechanic. Does well working with teams as well as on their own. Developed throughout the internship gaining more knowledge of our equipment. Still needs a bit of work with machining/welding.	Exceed Expectations	Yes	Yes
Student 2	4	2	2	4	4	2	2	Professional while on the job but needed a lot of direction and motivation to accomplish tasks. Just very new to work in an industry.	Below Expectations	No	Yes

### Employer Engagement

The IMT instructors and the Internship Coordinator have been in constant contact with industry companies and local employers.

The workplace readiness component has included direct contact with industry representatives that include classroom presentations, worksite visits, and opportunities for employment and/or internships.

Blackhawk Technical College has always valued employer engagement through program advisory meetings. Local employers are encouraged and invited to participate in advisory meetings. Also, increased internship opportunities have helped strengthen the college’s employer partnerships.

Highlights from the January 2014 Industrial Maintenance Technician Needs Assessment Survey are as follows:

- 93.8% of employers surveyed would encourage their present employees to participate in the Industrial Maintenance Technician Program if it were made available through Blackhawk Technical College.

- 100% of employers surveyed would hire a Blackhawk Technical College graduate from the Industrial Maintenance Technician program.
- 60% of local businesses surveyed would be willing to host Industrial Maintenance Technician students as part of a job shadow and/or internship.
- 62.5% of employers surveyed would hire a graduate of the Industrial Maintenance Technician program who had no previous work experience.

Industry Partners:

- |                              |                             |
|------------------------------|-----------------------------|
| • Bliss Communications       | • Lowe’s Millwork           |
| • Bluescope Buildings        | • Panoramic                 |
| • Charter NEX Films          | • SC Johnson                |
| • Diamond Foods Kettle Brand | • Scott Forge               |
| • Frito Lay                  | • Simmons Bedding Company   |
| • Jack Links                 | • SSI Technologies, Inc.    |
| • KANDU Industries           | • Universal Forest Products |

**Summary of Grant Enhancement Components**

**Flashcards:** Blackhawk Technical College IMT program and basic skills instructors promote the GAMMA+ flashcard created by Fox Valley Technical College. The electronic flash cards have been a useful instructional resource. The students use various learning apps and flashcards, especially Math.

**Standard Timing Model:** The IMT instructors are working on implementing the Standard Timing Model (STM) as a way of documenting students’ mechanical abilities. BTC has had discussions with our Business Division into perhaps using the STM in partnership with local employers in the community.

**Prior Learning Assessment/Credit for Prior Learning:** BTC had its own process for determining whether to award students credits for transfer as well as prior life and work experience. BTC’s Credit for Prior Learning process is coordinated by staff in Student Services but administered by various deans. BTC is currently in the process of working on the following:

- Creating a CPL Taskforce consisting of faculty, advisors, the registrar, and other staff
- Developing clear and concise processes and policies
- Creating a marketing plan to begin in the fall
- Faculty assessments
- Portfolios
- Website restructure
- Using common/consistent terminology
- Engaging conversations with students, staff, and employers
- Improving internal and external communication

**Wisconsin Technical College Collaborations:** It has been very beneficial for BTC to be able to share ideas, concerns, successes, and lessons learned with the other Wisconsin Technical Colleges.

Examples of these key learnings are:

- Programming ideas
- Team teaching
- Marketing initiatives
- Recruitment tactics
- Credit for Prior Learning process and procedures

**Best Practice Open Forum Discussions:** Northeast Wisconsin Technical College's grant management team made available open forum discussions for the technical colleges to collaborate and discuss issues and topics such as bridge courses, recruiting, employer engagements, Machine Tool, Welding, and Industrial Maintenance. Our project manager participated in the majority of these discussions.

# Chippewa Valley Technical College (CVTC)

## TAACCCT Grant Narrative – Machine Tooling Technics

With this grant opportunity, CVTC focused on the Machine Tool program, which provides trained workers for many area manufacturers who are facing a severe shortage of trained machinists due to retirements. Demand for workers in the field makes it a good choice for displaced workers seeking retraining and reentry into the workforce. CVTC focused on expanding the Machine Tool program to accommodate more students and preparing them quickly for the workplace through the development of specific skills and industry-recognized credentials. CVTC experienced proactive employer engagement in its efforts. Components like increased efforts in granting Credit for Prior Learning, NIMS Accreditation, curriculum improvements, and workplace opportunities for students are having an impact.

### Credit for Prior Learning

To help retain students, increase student success, and move students through the program quickly, CVTC worked to improve the process by which it grants Credit for Prior Learning (CPL).

Within the past three years, CPL at CVTC has undergone a major restructuring process. Funds from the TAACCCT grant helped with this effort by funding three workshops for Interim Director of Curriculum and Instructional Design Jodi Rust, CPL Director Franki Larrabee, and Academic Support Assistant Kristin Cook. The workshops provided an overview of CPL and how it can be used to increase student retention and success, support for program administrators in how to design programs and increase awareness, and support for academic services staff who work directly with students.

“The workshops helped us reference what we are doing and doing well and how to take it to the next level,” Rust said. “Data collection information helped us see how to grow our numbers.”

As a result of the CPL program overhaul, CVTC students seeking CPL can easily get answers through a streamlined process.

In addition to the pre-existing process for credit transfers from regionally accredited institutions, CVTC set up the processes to address requests for CPL that came from other life experiences, such as work and military experiences. A student starts the process by filling out an online form or contacting CVTC’s CPL coordinator. To be granted CPL, a student must demonstrate the course competencies. For work in Machine Tool, a student would demonstrate skills for an instructor. A written test might also be involved. Often demonstrating competencies involves an achievement application such as a portfolio that demonstrates the competencies in a number of ways.

CPL has long been available at CVTC, though for many years it was not emphasized and each department handled it in its own way. As a result, CPL was an under-utilized resource. Now the CPL coordinator works closely with faculty to design the method by which the applicant will demonstrate the competencies. This new process has made faculty much more comfortable with awarding CPL and they encourage students to seek it.

The new CPL process was used to grant Colin Utke, who is enrolled in CVTC's Machine Tooling Technics program, five CPL credits for a Turning Fundamentals class. Utke had completed a high school class with identical curriculum to the CVTC class, but CVTC did not have a transcribed credit agreement with the high school at that time.

"I got to skip a class here," Utke said. "It helped me out to get through here faster and get started in the career field I'm interested in."

Utke said having those skills and the college credit helped him get a job as a machinist at Parker-Hannifin in Chetek, where he works 20 hours a week while attending CVTC.

CVTC also is working to provide CPL for students who complete NIMS certifications (see below). Rust said the effort, known as New Learning Experience, was discussed at the CPL workshops. To gain full CPL for a specific CVTC course, a student must show an 80 percent competency level. New Learning Experience provides the opportunity for students in the 50-79 percent competency range to obtain partial credit for multi-credit classes.

The first example of this at CVTC is Machine Tooling Technics student Tyson Rohrscheib. Program students are required to take Manual Milling Processes for five credits. To make use of the NIMS certification for CPL, on transcripts CVTC split the class into two sections called Manual Milling Machine Setup and Manual Milling Machine Operations. Rohrscheib received two credits for the Setup class because of his NIMS certification, relieving him from having to take part of the five-credit class.

### **NIMS Accreditation**

In 2015, CVTC's Machine Tooling Technics program became the first metalworking program in the state to be accredited by the National Institute for Metalworking Skills (NIMS). The five-year accreditation indicates that CVTC's program meets national standards in five areas and allows CVTC students to test for any of 52 NIMS metalworking credentials. Formed in 1995 by the metalworking trade associations, NIMS sets skills standards for the industry, certifies individual skills against the standards, and accredits training programs that meet NIMS quality requirements.

Dave Thompson, program director of the Machine Tooling Technics program, said securing accreditation "was a thorough, enlightening, rigorous process that helped us to validate and improve our program."

CVTC's accreditation focuses on entry-level skills from the NIMS Machining Level I National Standard, with an emphasis on CNC lathe and mill operations.

"Employers in the Chippewa Valley know the quality of CVTC's Machine Tooling Technics program from our graduates," said CVTC Dean of Manufacturing Jeff Sullivan. "With the NIMS accreditation, now employers throughout Wisconsin and the nation have assurances that CVTC prepares machinists to the most rigorous industry standards, and it will enable our graduates to personally show their competencies through NIMS certification."

"With this incoming knowledge, CVTC students have the ability to be trained for more meaningful roles, advancing them in the organization," said LaMoine Dohms, plant manager at Wissota Tool in Chippewa Falls.

Thompson said CVTC now tests for three NIMS certificates with an option of two additional. So far, CVTC has awarded a total of 226 credentials. Student Elliot Watkins received NIMS certifications in Mill Operator and Safety & Materials.

“It shows the competencies I was able to perform – setting offsets correctly and creating good parts consistently,” Watkins said.

Watkins is employed part-time as a machinist at Vincent Tool in Chippewa Falls. He said his NIMS certifications have not played a role in his duties at Vincent Tool yet, but that is because he still needs in-house training on software the company uses. Once he is through that training, he expects his NIMS certifications to have a direct impact on his work assignments.

Elisia Gonsowski, human resources generalist for Riverside Machine and Engineering in Eau Claire, said the company treats NIMS certification as further evidence of a potential employee’s skills. “It’s definitely a plus,” Gonsowski said. “It could play into a situation in which we have a close decision between candidates for a position.” She added it could also play a role in the work an employee is assigned.

### **Curriculum Revisions**

Revisions in the curriculum are making CVTC graduates better prepared to move from the academic to the workplace setting. Revisions contextualized the math courses associated with Machine Tooling Technics, allowing students to better see the relevance of mathematics to the program. The classes are now team taught by Machine Tool and mathematics instructors.

Math Instructor Al Dohm and Machine Tooling Technics Instructor Jason Michaud team teach the class. Dohm said previously students would work on an independent basis through the lessons, and as a result were in various places in the lessons at any time during the 16-week term. Now students enter the class in one of two eight-week entry points. With team teaching, the instructors keep students at the same point in the lessons as other students who entered at the same time.

“Now they are learning it together, and helping each other,” Dohm said.

Michaud noted that the team teaching also drives home the necessity of the math class, which some students questioned. Now Michaud is there to tell them why they need to know math concepts by applying them to machinist situations. “It has a lot more credibility coming from the Machine Tool teacher,” Michaud said.

Improvements in student success compared with the pre-team teaching approach have already been seen. Math can be a stumbling-block for Machine Tool students. In 2012, fall-to-fall retention in the program was 38.4 percent. After grant implementation in 2013, fall-to-fall retention improved to 48.6 percent in 2014.

The Math 10 course taken by Machine Tool students had a success rate of 67 percent prior to the grant and 89 percent after team teaching was implemented. Math 20 had a success rate of 72 percent prior to the grant and 80 percent with the team teaching and contextual modifications. This change allowed the program to retain 15 percent more students based on the improvement in both areas. Based on having 152 students during the grant period, 22 more students would have found success in math as a result of these changes.

## Internships

When CVTC's Machine Tooling Technics program found an opportunity through the TAACCCT grant to initiate an internship program, there was no shortage of businesses anxious to help.

"We had an advisory meeting with industries and contacted our regular program advisory committee," said Program Director Dave Thompson. "Every one of them jumped at the opportunity."

In December 2014 Brandon Anderson became the first student in the program to complete an internship. His internship at Schmitt Prototypes in Menomonie then turned into a full-time job.

Internships are common across many CVTC programs, and a requirement in some. Internships give students on-the-job training and provide pay as well. Interns provide employees for businesses, which also get to know a potential permanent employee.

"Students get great exposure to industry training and the industry gets to see not only the technical skills, but the soft skills of the interns," Thompson said.

The need for qualified machinists is so great in the Chippewa Valley that most students secure part-time employment in a shop well before their graduation, after which they become full-time employees. However, that arrangement lacks the direct cooperation between the program and the employer that can lead to program instruction being focused for that student on the skills needed at the internship worksite. Internships also lead to a greater understanding by the student of the material learned in the Machine Tool lab.

Anderson found that it worked well for him. A year after entering the CVTC program in August 2012, he was hired at Schmitt Prototypes.

"When they started to offer the internship, I thought I'd give it a try," Anderson said. "I figured if I'm going to learn, I might as well get paid for it."

The internship involved increasing responsibilities at Schmitt and supervision by CVTC faculty. Anderson's skills improved through the combination of work and education.

"When I first started here, I just ran production," Anderson said in spring 2015. "Now I oversee some machines. I'm working myself into being the nightshift lead in the lathe department."

Students generally find their own internship experiences. Sometimes the internship becomes an item on a resume as a graduate looks for professional work, and sometimes the internship becomes permanent work. Thompson expects that will be the case in his program.

"A very high percentage of companies will offer interns a full-time position," Thompson said.

Gonsowski said Riverside Machining hires CVTC students as part-time workers, but also hires fourth semester students as interns, which has some advantages for both sides.

"It pushes them as well as us to see that they are floating around at different machines and not just pigeonholed into one job," Gonsowski said, explaining that a broad experience is part of the internship requirement. "Plus, the internship gets the student to look beyond just their position and at the goals of the company."

Gonsowski noted that one employee they have had for 10 years is attending CVTC to get a degree and is now working for them as an intern. "Now he's taking his work to the next level through the internship by learning to program."

### **Employer Engagement**

Area companies have been extremely engaged in CVTC's program, well beyond the usual involvement of the program Advisory Committee. Companies in the trade have expressed grave concerns about the future of their workforce, and have come to CVTC for help. Company leaders say their workforce is aging and worry about the availability of new trained workers to replace them.

Their concern led a group of industry leaders to unite to discuss marketing their industry more directly, in addition to the marketing CVTC does to promote Machine Tooling Technics and other manufacturing programs. Behind the effort were representatives from Manufacturing Works in Menomonie; MRS Machining in Augusta; Riverside Machining, Five Star Plastics and Pro-Cise in Eau Claire; and Wissota Tool, Vincent Tool, Nordson EDI, and W.S. Darley in Chippewa Falls. The companies pooled some financial resources to back their efforts and worked with CVTC instructor Jim Brown.

"Machine Tool shortage is affecting the local industry tremendously," CVTC Machine tooling Technics Program Director Dave Thompson said. "It is reported there are seven jobs for every graduate in the state of Wisconsin. CVTC has recently held focus groups with current students to identify student interests and trends. They are looking at social media as a way to market to this population. Local industries are also getting together to address this issue."

The needs in the industry bring heavy participation in CVTC career fairs from companies looking for Machine Tool graduates. At one career fair, a table from Riverside Machining displayed several small metal parts machinists at its plant produce. A sign asked for immediate applicants for machinists, inspectors, and calibration technicians. "About 90 percent of our crew are CVTC graduates. We recruit very heavily here," said Gonsowski.

Employers have been enthusiastic about helping CVTC's Marketing Department with materials to promote the Machine Tool program.

"CVTC's graduates ease of technology, adaptability skills, and a desire to learn make them excellent applicants. They work well in teams and have effective communication and problem solving skills needed to handle difficult situations. CVTC graduates come to us workforce-ready!" said Kenny Skar, owner of Vincent Tools.

"We typically employ several CVTC students while they are going to school, anticipating permanent hire once they graduate. We give them flexible schedules, stressing the importance of doing well in school," said Kim Schiller, general manager at MRS Machining.

### **Engagement with Workforce Resource**

Workforce Resource has been CVTC's partner in identifying displaced workers eligible for benefits under the TAACCCT grant for retraining through Machine Tooling Technics and other CVTC programs. Dan Lytle (now a CVTC employee) was the Workforce Resource representative on the TAACCCT Grant committee

who worked closely with CVTC Instructor Jim Brown. A number of enrollment slots in the program were reserved for the displaced workers.

The grant has helped people like Jerry Stanislawski, who worked at Hutchinson Technology in Eau Claire. He was laid off first in 2000, but returned in 2003, working in carpentry in between. He was laid off again in 2013. He interviewed several times, but employers wanted to see a degree. In March 2013 Jerry learned he qualified for Trade Adjustment Act (TAA) funds. He enrolled at CVTC in the Machine Tool program in October 2013.

“I’m learning a whole new language with the computer programming, which is great” Jerry said. He says he loves to work in small parts manufacturing. Jerry graduated in May 2015.

Dwayne Thomas also came to CVTC through Workforce Resource and eligibility for TAA funds.

“After being laid off from a manufacturing position – due to the company moving overseas – I was offered the opportunity through TAA to attend a training program or obtain a two-year degree to either further an existing skill or to acquire a new trade,” he said. “I chose to learn a new trade. At 37-years of age, I researched a career that would afford me the ability to provide for my family, secure and maintain savings, and less demanding on one’s body. That career was Machine Tooling Technics. The TAA staff here in Eau Claire were truly great with assisting me through the entire process and in preparing to return to school. After considerable consideration and research, the Machine Tool program seemed to be the best fit as the nation-wide demand for machinist is large and the average annual salary allows a person to provide for his/her family above the poverty level.”

Thomas graduated last year and went to work as a machinist at Nordrum EDI in Chippewa Falls.

### **Eight-Week Start Times**

Displaced workers are well served by staggered start times in the Machine Tooling Technics program. Students are not limited to starting at the traditional August and January semester starts. Instead, the program is divided into eight-week sections.

“We call it multi-entry,” said program director Dave Thompson. “We have five start dates every year, in January, March, June, August, and October. We do that for the employers and the students, so they don’t have to commit to a full semester to get into a program.”

That means a displaced worker laid off in September does not have to wait until January to begin training for a new career. It also means that employers who need machinists in March don’t have to wait until students graduate in May; some will have completed their program already and ready to start fully qualified.

The schedule works for traditional students like Elliott Watkins as well. He started in June 2015 and expects to graduate in December 2016.

“I was able to quit my old job in May and start the program in June instead of waiting until August,” he said.

## Fox Valley Technical College (FVTC)

### TAACCCT Grant Narrative – GAMMA+, a Web Repository of Free Mobile Apps

Fox Valley Technical College created a web repository for mobile applications in the following areas: manufacturing, mathematics, and soft skills. GAMMA+, which stands for Greater Advanced Manufacturing Mobile Apps, can be found at [www.wisc-online.com/GammaPlus](http://www.wisc-online.com/GammaPlus) and was developed by the FVTC Learning Innovations team. The site was created with funds FVTC received as a single applicant Round 2 TAACCCT grant (AMP+). One hundred twenty-five flashcard sets on the site were created with grant money from the *Making the Future* consortium grant.

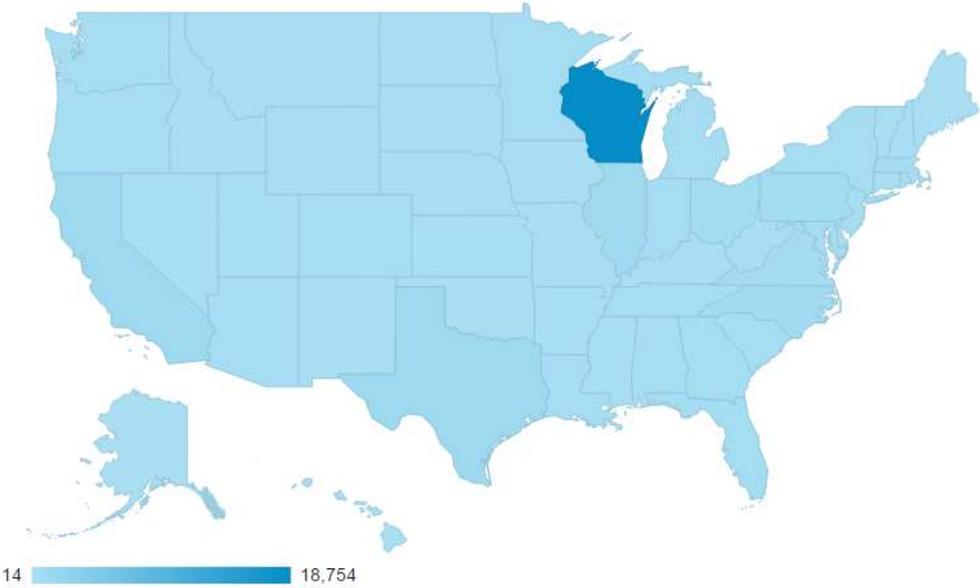
The site contains two formats of mobile apps: Learning Apps and Flashcard Sets. Learning Apps are longer, interactive content “lessons” which typically end with a practice quiz allowing users to practice skills learned. Flashcard Sets are shorter, drill-and-skill “cards” that allows users to practice concepts already learned. All mobile apps are designed to be used by anyone, anywhere, and on any type of electronic device (smartphones, tablets, laptops, or desktop computers).

GAMMA+ provides value to workforce partners, faculty, and students beyond the Wisconsin Technical College System. Workforce partners use the apps for internal trainings and refreshing of skills. As Chuck Duginski from Grassroots Machining, LLC in Neenah, Wisconsin, said during an interview for the March 2015 *Insight on Manufacturing* magazine, “It’s great to have this information right at your fingertips.” Many FVTC faculty have embedded the apps in their courses, offering students another way to assess their skills. All of the math courses at FVTC have the math apps embedded in their MyLabsPlus courses, which offers additional practice to students in a different format. Over six hundred math students completed a survey on the GAMMA+ Learning Apps for the spring 2015 semester. Forty-six percent of those surveyed indicated that the apps on equations were the most helpful, followed closely by the apps on fractions. K-12 partners also use the apps in their transcribed credit courses and regular high school courses.

There are over 400 flashcard sets being used by people all over the world. Below is a map showing the worldwide reach of GAMMA+. The darker the blue, the more visits to the site. The darkest blue represents over 33,000 visits to the GAMMA+ site.



This map shows in Wisconsin there have been over 18,000 visits to GAMMA+.



Finally, besides Wisconsin, California and Texas show the highest concentration of users of GAMMA+ in the United States.



# Gateway Technical College

## TAACCCT Grant Narrative – Tool & Die

For Gateway Technical College, the start of the TAACCCT 2 Wisconsin Consortium grant involved many moving parts and personnel. The College's main goal of the grant was to recruit TAA participants and other dislocated workers for *Making the Future* training, specifically developing a new Tool & Die Technical Diploma. Discovering what the new program development would entail, the personnel needed to be involved at all levels of the organization and state system, and how in-depth the curriculum development would be, created a myriad of challenges. Although challenging, throughout the initial program development and following program implementation, a lot of lessons were learned providing for College-wide best practices.

*This program prepares learners for work in the Tool & Die industry through instruction in precision machining, CNC machining, die stamp making and grinding operations. Tool & Die makers use highly developed skills and attention to detail to create very precise machine parts and components. Learners will analyze specifications, lay out metal stock, set up and operate machine tools, and fit and assemble parts to make repair dies, cutting tools, jigs, fixtures, gauges and machinists' hand tools. (Gateway Technical College Website, Tool and Die Technician Program Summary, 2016)*

### **New Program Development, Curriculum and Articulation Agreements**

As part of the *Making the Future* Wisconsin Consortium initial grant submission in 2012, Gateway Technical College's Dean of Manufacturing reached out to area employers through face-to-face meetings and phone calls to determine the need for a specialized Tool & Die training program. Additionally, through bi-annual Advisory Board Meetings — in which area employers and local Workforce Investment representatives make up a significant portion of the sitting board — Gateway's Dean of Manufacturing, along with faculty chairs and representatives, determined that the local labor market would indeed benefit and thrive from the implementation of the Tool & Die training program.

In November 2012, the official new program development process began. Information and research supporting the local need for the program was collected, which included database research, surveys, and local employer input. Some of this research included Economic Modeling Specialists International (EMSI) reports of the mean starting salary for Tool and Die Makers in Gateway's district as \$24.02 per hour, higher than the national average, \$22.56. Also, representatives from the advisory committee reported a likely starting salary of \$19.19 during the ad hoc committee meeting and local employers reported on the Tool and Die needs assessment survey a starting average of \$21.98. The demand for this program was further evidenced in the Bureau of Labor Statistics projecting 7% growth from 2010-2020 nationwide. The needs assessment survey, disseminated to Gateway's tri-county district, surpassed the expected projections, presenting an even brighter job outlook picture for southeastern Wisconsin's machining industry. Representatives reported that their companies intend to hire 20 new or replacement Tool and Die Techs (combined part-time and full-time), annually, through the next 3 years (60 total).

With employer validity and backing, Gateway Technical College set forth on the path to submitting a new academic Tool and Die program to the state system. Official approval came a year later in 2013. Throughout the approval process, curriculum development occurred. Several instructors along with the instructional designer worked extensively on the course design and credits associated with the courses, creating above- and below-the-line curricula and placing in Worldwide Instructional Design System (WIDS). The process was anything but seamless and created many challenges for faculty, staff, and grant management. However, once in place, Gateway could begin offering courses in Tool and Die, which commenced in spring 2014, and have successfully continued throughout the grant participant program period. The resulting impact was better processes and procedures in curriculum development and marketing and recruitment practices, culminating into what the college considers best practices. For curriculum development, the college discovered the need to have only one subject matter expert working directly with the instructional designer on the development of the curriculum. It was this one-on-one format which created a more cohesive curriculum with sound competencies. For marketing, the college realized the sooner this department became invested in the goals of the grant, the better. In fact, once the college's marketing department became involved, a cohesive recruitment strategy took hold (what materials will be needed for what audiences and why).

As the grant-funded program of Tool and Die Technician is considered a final/terminal degree from a technical college, four-year degree providers often are able to provide Gateway Technical College with a management track. For this program and our specific articulation agreement with Bellevue University, the Industrial Mechanical Technician would be the specific management track route as the next step in the career pathway. Gateway Technical College currently has a management track articulation agreement with the University of Wisconsin- Stout. Specifically, it is the Bachelors of Science in Management - with specialties in operations, quality, and project. Additionally, and also with the University of Wisconsin - Stout, Gateway Technical College has an articulation agreement for the Bachelors of Science in Engineering Technology - Production Operations.

### **Employer Engagement**

A major impact of the *Making the Future* grant is it has improved the college's practice and the approach of working directly with employers. Gateway Technical College is more proactive in recruiting employers to participate in program advisory board meetings. These meetings offer an opportunity for local manufacturing companies to provide direction and input on curriculum and program enhancements. These meetings also increase the college's opportunities to recruit industry employees into grant-funded programs for additional skillset training. Also, the growing network of employers who sit on and advise during these Program Advisory Board Meetings provides for additional job fairs, featuring more companies in need of workers with a certain skillset. No firm data exists on the success rate of the job fairs, but project faculty and staff have witnessed the networking for students and staff alike that occurs at these job fairs. They have mentioned that employers have been impressed with the college's caliber of students, the level of training they receive, and the soft skills they possess.

### **Sustainability**

As with any grant-funded program, inevitably the grant does end. Knowing this, Gateway Technical College commenced initial discussions in spring 2015 with stakeholders (which included the college's faculty and staff, local industry employers, Program Advisory Board, and workforce agencies) for

providing a plan of sustainability. The organization has identified resources (funding coming from the college's own general budget) that will support the project activities after the grant expires. With administrative support and financial backing, we will be able to continue the program on the Racine Campus as well as expand onto the Kenosha Campus.

The first few cycles of course offerings tend to illuminate potential areas to explore alternative teaching methods and processes. Instructors have noticed that there are a few courses that they would like to modify, combining and incorporating Computer Numerical Controls into the overall Tool and Die Technician program. This need for modification of curriculum is a direct result of employer demand and the college's ability to quickly respond to their request for more relevant and timely curriculum. With the aid of grant funds, these curriculum modifications have already begun and will continue throughout the summer months, further sustaining the Tool and Die program.

Additionally, recruitment efforts and employer needs have increased throughout our district and have even expanded to Northern Illinois. The Tool and Die Technician program is high caliber and sought out by students traveling over an hour to be part of the program. Students value a program which offers flexibility with multiple learning locations, giving them an opportunity to earn a degree with the career potential and consistent job availability area employers provide. Some of the quotes from students include, "The schedule allows me to go to work and go to school. I work on the weekends and the days I have off and I come to school Monday, Tuesday, and Thursday." And "In the event that some of my classes do have problems with work schedule, I can always go to Kenosha, or I can always go to Elkhorn, because they have other colleges [sic. Campus locations] that will fit my time period."

Other sustainable efforts include discussion of internships, creative course/program scheduling, making students aware of the scholarships available for their programs, and potentially securing a Mobile CNC Trailer Unit that would act as a recruiting tool at high school open houses and college fair nights.

### **Final Thoughts**

In closing, the *Making the Future* grant provided Gateway Technical College the resources to further support the college's mission of serving students and local industry needs. Although challenging, throughout the initial program development and following program implementation, a lot of lessons were learned providing for college-wide best practices in curriculum development, marketing, and recruitment practices. We have applied these lessons to our work on the TAACCCT 3: INTERFACE Wisconsin Consortium grant and have thus far exceeded outcomes and expectation numbers on this grant.

Additionally, regional employers continue to be active in curriculum development through roles on the Program Advisory Board. The college will actively encourage the development of these relationships and seek out new partnerships whenever possible.

## Lakeshore Technical College (LTC)

### TAACCCT Grant Narrative

In October 2012 Lakeshore Technical College became a participant in the *Making the Future: The Wisconsin Strategy* statewide project along with the other 15 colleges in the Wisconsin Technical College System (WTCS) through the TAACCCT 2 grant. The Wisconsin Department of Workforce Development, the National Association of Manufacturers, the Wisconsin Workforce Development Association, and more than 50 different manufacturing companies across the state supported the project, worked to align their plans and strategic priorities, and advised on curriculum and pathway development in order to develop, improve, and expand adult educational training pathways to careers in advanced manufacturing.

At Lakeshore the focus was on two (2) areas of programming, Machine Tool Operations/Computer Numeric Controlled (CNC) Technician and Welding Industrial/Fabrication Technician whereby the one-year programs in these areas were expanded to two-year programming with pathways and certificates built in. This effort coincided with curriculum development, facilities expansion, and changes in the delivery model. The local advisory committees worked closely with the college in mapping out this direction and private industry donated \$2.5 million to assist in the renovation of facilities and equipment.

What follows is the story of how these grant funds made a difference in the lives of several students who attended Lakeshore Technical College and were trained in these programs as well as the employers who will hire them in the future. These students are but a small sample of the 255 students directly affected by this project. Too often the success of such a grant project is based on cold facts and figures, statistics and percentages, or dollars spent. This narrative will show the human interest side of this project, how real people struggling to improve their lives and the lives of their families benefitted from this effort. This grant provided them the opportunities to acquire the skills and earn degrees/credentials that will allow them to gain high-wage, high-skilled employment in a fast-paced and growing manufacturing economy. It also highlights the benefits such a grant can have on local employers as they struggle to fill the pipeline with technically skilled workers. So let's meet some of the people behind the statistics and hear first-hand how these changes affected them.

Adam Fencil, a graduate of the Industrial Welding program, is now completing the Fabrication Technician program. In high school, Adam was interested in shop classes and his instructor inspired him to do more. He attended college preview nights at LTC and high school tours. He heard good things about the school so he enrolled. He was both excited and nervous his first day; however, finding classmates of various ages made it feel more like the real world and not high school. He liked that there were only two general education classes and that he was able experience "hands-on" work early in the training. Although he did not see the importance of the communication class at first, he can now better understand how it relates to dealing with his co-workers.

Adam appreciates the atmosphere at LTC with its calm, laid-back, and welcoming approach to education. He likes that the instructors do not hound him but treat him as an adult. He describes his

instructors as nice and outgoing, who freely share their experiences and truly want him to succeed. He likes the independence and responsibility that LTC provides. He was amazed at how in-depth the CNC programming can go; more than he ever imagined. Adam's advice to potential students, "Just go out there and do it. It gets easier once you get into it."

Cal Yakoubek, a student from Two Rivers and graduate of Industrial Welding program this past December, is now enrolled in the Fab Tech program. He and Adam have been friends for years: they both work at a local employer, carpool to LTC together, and share in the love of the welding and fabrication technician areas.

Cal really had no knowledge about LTC until the mini-chopper program was made available to him in high school. "The project turned my attention to LTC although I really had no prior experience in welding or fabrication," Cal stated. His first day in class, he had a case of nerves but only for a short time. He found the campus welcoming and made friends quickly. He was excited to be welding right away the first week. "I liked that the classes were not too big and the instructors really knew what they are doing", said Cal. He wanted hands-on learning and is pleased to have received it. He was not crazy that there were two general education classes; however, looking back, he said the resume writing and mock interviews were incredibly helpful.

Tim Voskuil, owner of Voskuil Machine Company and former graduate of the LTC Machine Tool program, recently hired an LTC graduate of the CNC Technician program at his facility in Oostburg, WI. Tim is a firm believer in technical education and sees a definite need for technically-skilled people in the manufacturing arena. When hiring new employees Tim looks for individuals with strong machining skills, good work ethic, and an interest to learn more. He feels he is able to find such individuals when hiring graduates of the LTC program.

Tim had the opportunity to tour LTC's remodeled machine tool/CNC lab in the fall of 2014 and was impressed with the quality of the machines in the lab as well as the instructional staff. Tim said, "I appreciate the fact that students in the program not only learn how to properly operate the machines but that they also understand how to take care of them, which is very important to an owner/operator such as myself because of the high cost of the equipment." One of the items that Tim mentioned he was impressed with were the HAAS CNC programming simulators which allow students to program tool paths for the CNC machining and turning centers while in the classroom. This provides more time for the student to become proficient on programming without tying up the machines in the lab. The HAAS simulators were purchased with funding provided by the TAACCCT 2 grant.

Tim is very satisfied with his most recent full-time hire in Justin TenDolle, a December 2015 graduate of the LTC CNC Technician program. Justin excelled in the program and was certainly a model student. Interestingly, Justin did not consider himself a good student in high school but found his true passion in the machining industry during high school when he became involved in the Youth Apprenticeship program and started working part-time. This led him to LTC and the Machine Tool program where Justin was one of the students that began his studies in the old lab with the one-year Machine Tool curriculum. During his time at LTC the new curriculum for the two-year CNC Technician program was developed along with the major remodeling of the lab. Justin noted, "The new curriculum was great," and that he decided immediately the additional year of training was for him. He credits the instructors in the

program for helping to develop his skills and especially the math instructor in the program who he said was fantastic. According to Justin, “I did not like math in high school but this instructor made it so easy to learn.” Justin’s goal is to continue to advance professionally and is positive he has found his career. Steven Manthey, LTC Machine Tool Operations Specialist, has over thirty years in the machining industry and works alongside faculty and staff who are all journey workers in the machining trades with many years of experience. They are familiar with industry needs and they bring a wealth of knowledge to the classroom to share with their students.

According to Steve, the Machine Tool Advisory Committee played an integral role in the process by providing direction in application of the TAACCCT 2 grant funds to positively impact the machine tool department. Committee members shared their need for additional CNC programming skills in our graduates along with more hands-on time on the machines. Previously, in our old shop, students felt rushed as there was often a line of students waiting to use the same machine. Unfortunately there were not enough machines or enough time to become proficient at the skills needed in the trade. The TAACCCT 2 grant allowed LTC to expand programming and purchase additional equipment which matched up nicely with a major remodel and expansion of the machine tool/CNC lab. Now the students do not have to wait in line or feel hurried. They have the time they need to complete repetitive tasks, hone their skills, and become highly proficient.

Steve stated that the grant allowed LTC to expand into a two-year program, with the second year providing emphasis on advanced CNC turning centers, CNC machining centers, and CNC programming all of which was highly desired by industry. We can’t fully prepare a student for each potential job out there, but we will have given them a broad picture of the machine tool trade so they have enough knowledge to adapt to the shop-specific or unique skills needed when they are hired. LTC has received great feedback from our advisory committee that our newly completed graduates have mastered the skills that their growing industry needs.

Peter Willis, Executive Director of Progress Lakeshore Economic Development Corporation, expressed his view concerning the state of the economy in Manitowoc County. Peter shared that the manufacturing community had expressed a skills deficiency in the local work force, with open positions and the need for technically trained workers. According to Peter, the skills gap limits employers to expand their businesses and grow. However, having Lakeshore Technical College in our area helps to alleviate this problem.

Peter feels the skills needed in manufacturing are not taught in high schools at the level that employers need. Companies don’t provide in-depth on-the-job training and this gap is filled by the technical college. Partnership is the key to filling this need with technical training providing skilled workers that will help companies expand and keep them in the community. The demand for specialized training in welding, fabrication, and CNC is obvious in Manitowoc County. Every skilled job filled in our community gives back – restaurants, stores, and dollars spent on our local economy. Lakeshore Technical College’s students help us retain the companies that need these workers and allow community growth.

Jeff Bronson, a first year student in the Machine Tool/CNC Technician program and USMC Veteran (medic), had been out of school for over 15 years. He was looking to use his GI bill to help him change careers, learn a skill, and provide for his family. He found the Veterans Administration (VA) representatives on the LTC campus to be very supportive, as he currently works full time on the weekends and attends school at LTC full time during the week, which makes balancing those two things

and his family life a real challenge. Fortunately his wife is incredibly supportive. Jeff was nervous his first day but liked the variety of ages of students in his classes and soon settled into the routine of being a student again. Jeff found math challenging and he is hoping to get much better at it. He has been very impressed with the instructors at LTC and thinks they are some of the best instructors available: adept at instructing the whole program. According to Jeff they integrate all of the classes so the student will be well prepared to graduate. Jeff would like to work in a smaller machine shop where he can earn a good living wage so he can support his family.

Renee Kasten, another graduate of the Industrial Welding program who is presently completing the Fabrication Technician program, also speaks positively of the program, the instructors, and LTC as a whole. She chose the program because of the six-month timeline for completion and the opportunities that exist in the area. Naturally she was concerned about being a female entering into a predominately male workforce but after starting the program, she realized that her instructors and the other students treated her no differently. She was just another welder. After completing the welding program Renee began working part-time in the field but wanted to complete the Fab Tech program. While waiting for the next cohort group to begin in the Fab Tech area Renee enrolled in a series of classes in the Machine Tool/CNC area, and really enjoyed that area too. Her instructors have commented on her positive attitude and work ethic which serve her well. Renee completed all of the classes in this area ahead of schedule and received A's in all coursework. Renee will be seeking a full-time position in the manufacturing industry when she completes her studies in June.

Dave Saunders, Welding Program Coordinator/Instructor, and his weld team worked closely with their advisory committee and local industry to determine suggested improvements for the shop, curricula, and skills needed to keep his students in sync with current manufacturing needs and trends. The TAACCCT 2 grant allowed the weld instructors to further their education and become Certified Weld Inspectors, a skill they can now pass on to their students in the form of a certification. According to Dave, the grant also allowed for the purchase of new robotic welding equipment, a state-of-the-art welding simulator, and an instructor demonstration area. As for the instructor demonstration area, prior to the grant an instructor would demonstrate various welds to a small group of students, then have to repeat this for the next small group. The new equipment allows for the instructor to do the weld demonstrations one time and the overhead camera projects it up onto a large screen for all the students to see the weld at once, making the use of time more efficient. The grant also allowed the program to grow into a two-year certificate, which allows LTC to graduate a well-rounded student. The first-year students learn to weld and in the second year they learn to fabricate, building upon the skills achieved in the first year. The advisory committee also requested that LTC students learn to use Welding Procedures Software (WPS) and the grant made the purchase of WPS software possible. Dave was also able to create a weld student library, allowing students who did not have the funds to purchase certain books, to borrow them at no cost.

Doug Thompson, Vice-President of Operations for Amerequip Inc., is sold on technical education and on the services the local technical college can provide for manufacturing companies such as Amerequip. In his role, Doug is responsible for the manufacturing operations at both the Kiel and New Holstein facilities where finding technically skilled workers is of utmost importance. Amerequip is a growing business with goals to grow even bigger over the next five years which means the need for qualified workers will never be higher. Doug explained that Amerequip's partnership with Lakeshore Technical College is not only good for the company but for the community at large, bringing more jobs and

resources to the community. Doug appreciates LTC's efforts in seeking out grants such as the TAACCCT 2 grant in order to expand programming by providing resources for curriculum development and new equipment. From the company's involvement in the Youth Apprenticeship program, to program internships, to the hiring of graduates, the partnership developed between these two organizations has clearly been a win-win for all involved. Doug commented that he was impressed with the training facilities and the curriculum that was available at LTC. He mentioned that LTC even has the same welding equipment and robotic welding systems as are used at Amerequip, making the transition for graduates to the workforce so much easier.

That transition occurred for Shayne Krueger, a recent LTC graduate of the Industrial Welding program. He was working part-time at Amerequip and was hired full-time while completing classes at LTC. Shayne is now making good wages and loving it. Shayne admits that going back to school was not in his plans but when he was laid off from his previous employment, the time seemed right to get into a more stable career. With the support of his wife, who was working full-time, Shayne decided to take the leap and started looking for training. He was turned on to LTC by a friend from whom he heard good things; plus the campus was an easy commute. The first couple days were scary, according to Shayne, but after a short time he felt right at home. He credits the LTC staff, from the admissions staff to the instructors, for making the return to school successful despite his absence from education for more than 15 years. Shayne speaks highly of his program instructors who provided support and encouragement to him every step of the way. He is thankful the staff, the program, and the great facility were there for him when he needed it. His goal is to continue his career as a welder because he loves being under the hood and continues to be amazed that he has been able to master this skill in such a short time. Shayne is considering continuing his education in the future by completing the Fabrication Technician program but for now is happy to be working at such a great company as Amerequip and being able to support his family.

Brett Schmitt, a graduate of the Industrial Welding program and now a Fab Tech student, grew up the son of a machinist but did not pay much attention to what his father did. In high school, Brett had no idea what he wanted to do with his life until his high school metals teacher strongly suggested he check out LTC. Brett was able to take a class at LTC his senior year of high school through the Youth Apprenticeship program and liked it. He wanted a short-term training so he could get started earning money sooner so he chose the six-month Industrial Welding program. When he started his classes at LTC, everything was pretty new. He was pleased that there were not a lot of general education classes and that he could get into his shop classes right away. He was also happy that there were hands-on learning activities the very first week of classes. His instructors inspired him by telling him to never give up and to keep on trying. Brett finished the program and was pleased to walk across the graduation stage.

Brett believes "The more I know, the more valuable I'll be to an employer." This strong belief brought him back to LTC for the newly created Fabrication Technician program, so he can learn more skills and become a more valuable employee. The LTC Foundation and Technical Excellence assisted him with his financial struggles to pay for his education through several grants that he received. Currently enrolled, he is still pleased with his instructors. There is plenty of time for his questions to be answered and even one-on-one learning. He is amazed that there is so much more to CNC programming than he even imagined. "The LTC instructors will help me to succeed. It's a good school." He was also happy to be able to test out of weld math, something he never would have thought possible in high school.

Shaun Mayr, an Industrial Welding graduate two years ago, described the LTC instructors as “awesome.” He had a bit of welding in high school and wanted to learn more. He had to work for six months after high school to earn money for his education. He was able to attend one of LTC’s Explore College nights and signed up for college then, saving himself the application fee. The staff in financial aid were a great help to him.

Finding himself in a classroom with students of various ages and all walks of life just made learning feel more like the “real world.” He found the student-to-teacher ratio to be ideal for learning. He could ask questions and get immediate answers, learn the skills, and practice, practice, practice. He described the instructors as professional but fun. They will work with you and offer the flexibility that a student needs when working while attending classes. He feels the curriculum is preparing students for the real world. By attending the second year Fabrication Technician program, Shaun feels he is beefing up his resume, being able to show potential employers that his education means he can be cross-trained and fill in at other positions at work, making him more valuable. He looks forward to graduating and making a good living.

Roger Wensink, Machine Tool/CNC Instructor and Journeyman Tool & Die Maker, said the advisory committee and industry representatives as well as industry trends played an influential part for the suggested improvements to the shop, machines, and curriculum. The TAACCCT 2 grant gave us more space and more machines so the students can have more time learning to work on all the various pieces of equipment. In the one-year program, he said they just couldn’t adequately cover the wide range of skills needed in the workplace. Now students are far more prepared. Manual machines are slowly being phased out and the ability to offer more in-depth CNC programming is a huge asset to our students. The feedback he’s gotten from industry is very positive. LTC students need less on-the-job training because they are graduating as well prepared, highly skilled workers. The TAACCCT 2 grant also allowed the instructors to be trained on the most modern programmable machines that may not have existed when they were in the private sector.

The TAACCCT 2 grant has had a positive and long-term effect on the students and employers served through Lakeshore Technical College. These resources have assisted the college in developing new curriculum, expanding programming, purchasing needed equipment, and hiring additional staff which in turn opened the training up to more students who are now receiving a quality education. All of the staff hired have continued to be employed and are now funded by the general operating budget of the college. The long-range effects of this grant will be an increase in qualified employees for the local employers, a strengthened economy for the region, and more opportunity for the unemployed/underemployed citizens of the community, all of which will help keep this region the manufacturing center of Wisconsin.

# Madison Area Technical College

## TAACCCT Grant Narrative

### Madison College Impact Topics

- *Student Support Model /Bridge Partnership Model* with the School of Academic Advancement /TAA Manufacturing Essentials. The model that was developed during the duration of the grant represents the process and or strategies for successful recruitment, support, collaboration, and retention of our students.
- *Replication/Sustainability of the model within the School of Applied Science, Engineering, and Technology due to the success demonstrated with the Advance Wisconsin Manufacturing TAACCCT project at Madison College.*

A portion of Madison College's scope of work was to reform the Machine Tool program by chunking down the two-year program's curriculum to offer short-term credentials that could lead to employment or further education. This was accomplished by creating an education/career pathway with multiple entry and exit points. Within the pathway, students had opportunities to earn industry recognized credentials such as OSHA safety, MSSC Safety and NIMS.

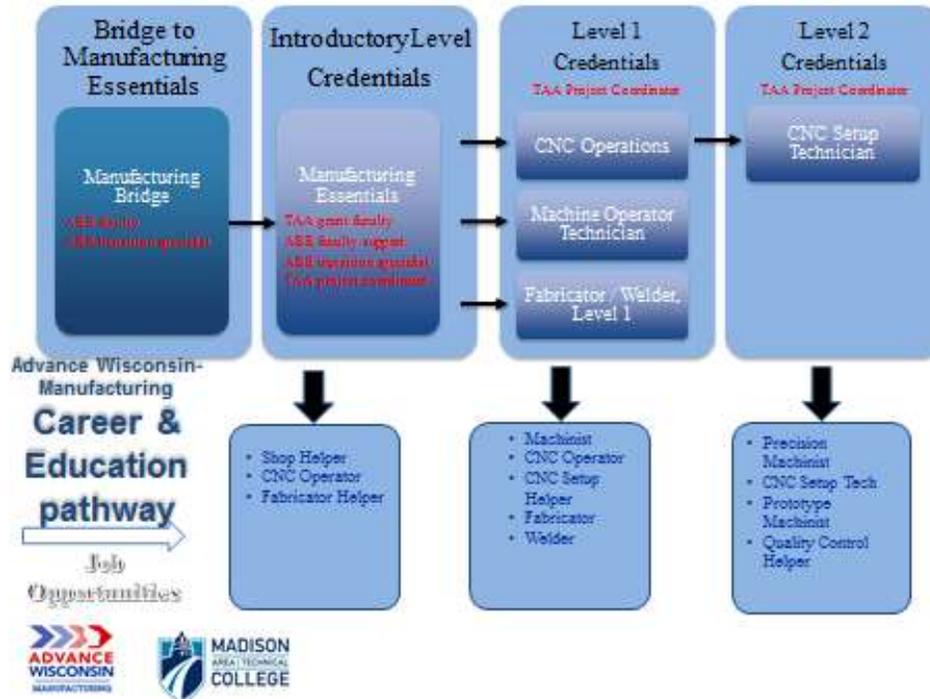
Along with the goal of reforming the Machine Tool program, Madison College's TAA grant program support staff and faculty also partnered with the School of Academic Advancement to serve many of the ABE (Adult Basic Education) population. During this partnership the team developed a student support model that has been replicated and sustained among several other programs since its implementation.

### Summary of the Student Support Model

The goal and mission of the TAA project for Madison College was to give our students the best service possible to ensure they were advancing in their career and education pathway with as much support as possible. Several of the students served were first generation students, older adults who have never participated in college before, or students that would not have had this opportunity for college if it wasn't for this specific program. In order to serve this highly-vulnerable population, it was apparent that more support services for our students needed to be provided than a typical advising model. Therefore, Madison College used this grant as an opportunity to pilot something new. The team implemented a full service case management approach for each student from entry into our program to the end. The TAA grant coordinator worked closely and collaboratively with the transition specialist from the School of Academic Advancement. As well as making sure the students were supported from beginning to end of their programming, ABE faculty also team-taught with manufacturing faculty in classes where support in math was needed.

This model has been proven to be a success as it has been duplicated in other areas of the School of Applied Science, Engineering, and Technology. Since the start of the Bridge to TAA Manufacturing Essentials, four more bridges have been implemented or are in the planning stages to be rolled out by spring of 2016; they are as follows: Bridge to Construction, Bridge to Biotechnology, Bridge to Electronics, and Bridge to Industrial Maintenance.

Please refer to the visual below that outlines the support model in more detail. The visual represents when and what specific key staff were involved for student support in the pathway.



### **What is a Bridge Program?**

In January 2013, Madison College implemented its first collaboration between School of Academic Advancement (SAA) and the School of Applied Science, Engineering, and Technology (ASET): the Manufacturing Essentials Certificate Bridge. The program targets Adult Basic Education (ABE) students, English Language Learners (ELL), Dislocated Workers, TAA funded or (eligible for funding) individuals, Veterans and individuals who are looking for a change in career to obtain a life sustaining wage. Students were given a Compass test to determine if they needed to complete the Manufacturing Bridge or if they were eligible to enter Manufacturing Essentials. If these individuals scored low in certain areas (reading, writing, or math) they were recommended to participate in a 36-hour non-credit, intensive preparatory course taught by Adult Basic Education (ABE) faculty, known as the Manufacturing Bridge.

The bridge course prepared students in the areas of reading, writing, and math and was designed to pre-teach skills and vocabulary that will familiarize students with the content they will learn in a certificate program, known as “contextualized curriculum.” In addition, employers are looking for prepared, skilled workers who demonstrate appropriate soft skills. Bridge programming focuses on improving soft skills such as effective communication, decision making, showing commitment, flexibility, time management, leadership, and working as a team player.

Finally, students who participate in the bridge program build community with their cohort. The bridge course gives students a chance to experience a support system that does not exist outside a cohort

model. With the bridge/manufacturing essentials model, specifically, several students start together in the bridge and continue on as a group in the nine-credit Manufacturing Essentials Certificate.

Once the bridge course was completed the academic/advisor support followed the cohort into the Manufacturing Essentials Certificate program, specifically in the Math, Drawing Interpretation and Workplace Communication for Industry courses. Transition specialists continued to provide intensive case management in collaboration with the grant coordinator. Developmental education instructors, the transition specialist, grant coordinator and technical program instructors worked collaboratively over the course of the first semester to ensure student success.

### **Recruitment**

Students learned about the manufacturing bridge/manufacturing essentials in a variety of ways. Typically 30-40 students were recruited for each cohort by the ABE transition specialist or they were referred to the transition specialist or grant coordinator. Out of the 30-40 that were recruited and interviewed, 20 were accepted into the program. During the recruitment process several steps were initiated in order to determine if the program was a right fit for the potential student, such as:

- Take the Compass test to determine eligibility to start with Manufacturing Essentials or the Manufacturing Bridge.
- Interview: Certain questions were asked to assess if the potential student could handle the rigor of the program, such as: does the student have a job, family, transportation, and live on a bus line; and can the hours of the program fit in with what else is going on in the student's life?
- Support for getting started as a Madison College student: Several things were done with the student to alleviate the intimidation of starting as a new student. For example, one-on-one assistance was given when applying for the Manufacturing Essentials Certificate program online, received assistance obtaining their student identification card and getting their bus pass, and received assistance applying for additional funding such as Work-Smart.

### **Retention**

We take pride in making sure our students were retained in their grant program of study and did several things to make sure students were on track to complete whatever grant-funded certificate program in which they were enrolled. Eighty-one percent of students who participated in Manufacturing Essentials, CNC Operations, Machine Operator Technician, Fabricator/Welder, and the CNC Setup Technician were successfully retained in their grant program of study.

#### Tools Used to Expose Students to the Possibilities

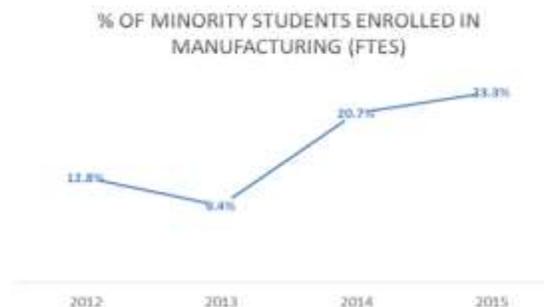
- Bi-weekly check-ins
  - ABE faculty and staff, TAA grant faculty, and TAA project coordinator met bi-weekly to discuss student issues, and share grant updates, new initiatives, and positive happenings. If a student needed to be contacted, the most appropriate person was identified and assigned the task.
- In-class support/personal contact
  - Regular class visits were provided by the transition specialist and or the project coordinator (PC) to check in with students and assess if there were any questions/needs.

- Monitor grades, attendance, and assignments
  - This was taking place during the bi-weekly check-ins as a group.
- Ensure the college experience
  - The graduation ceremony is reserved for students earning an associate degree or diploma and completing their respective requirements. Therefore, it is not common practice for certificate completers to be part of a graduation ceremony. Through this program, graduation programs were held to honor the students at each certificate completion. Students and their families would join the support and academic teams and college leadership and attend a program with recognition speeches, keynote speakers, and a pot-luck meal. It was essential to recognize the students' successes as so many entered our program with many obstacles the typical student does not possess.
- Field trips to local manufacturers
  - Each cohort of Manufacturing Essentials (12 total) participated in a field trip to a local manufacturer. These field trips educated our students on the types of jobs they could obtain at an entry level upon program completion and what possibilities existed if further education was acquired. These field trips also helped the college build relationships with our local manufacturers.
- Career Fairs
  - We hosted three career fairs during the time of the grant. The career fairs were a great success in bringing in businesses to the college and educating our students on what type of positions were available to them. Some students obtained jobs as a result of the career fairs.

### **Impact to Students/Madison College**

Madison College was pleasantly surprised with the impact this project has had within the School of Applied Science, Engineering, and Technology and to our students. The short-term credentials established an educational pipeline for students who wished to continue on with their education in the area of manufacturing. Due to a high number of students taking program courses after completing TAA grant certificates, additional sections were offered to accommodate the additional students in the area of Machine Tool, which created an additional 15 seats. Also, because the TAA short-term credentials ran at flexible times of the year, it forced the school to adopt flexible entry points into the Machine Tool Program, looking at spring enrollment vs. fall only.

Not only did the implementation of short-term credentials increase the pipeline of students into programs, it also increased the diversity in ASET since 2013, see the graph below.



Several students over the years have communicated to us how the program changed their life and they would not be where they are today without the support and guidance of the *Making the Future* project. Below is a written testimonial from one of our students, Rose. Before Rose was recruited to participate in the Manufacturing Essentials program, Rose was working in a grocery store and raising a family as a single mother. She had a hard time making ends meet and was not sure of where her career would end up. Before Rose applied to the Manufacturing Essentials program, she applied with EVCO plastics where she was initially turned down for an entry-level position. Once she started with the curriculum and completed Interpreting Engineering Drawings, Evco was impressed and wanted to give her a chance at the position. Please read Rose's testimonial, below, on how the Manufacturing Essentials program has made a huge impact in Rose's life.

*"All things are possible." Being a 39-year-old, divorced, mother of four, I thought that statement to be simply a cliché. After enrolling in the Manufacturing Essentials Certificate at Madison College, I began to change my mind. It had been nearly 2 years of underemployment. While taking classes, I was given the opportunity to work for a local plastics company via Remedy Staffing. When EVCO found out I was not only completing this certificate, but also taking the CNC Operations Certificate for the summer, I was hired on full-time with benefits. This happened within three months. As I complete this certificate, I am enrolled for the next certificate, CNC Set-Up Technician. It has now been six months since I first set foot inside EVCO. I am now training as a "Back-up Set-Up Technician." I get to work on Plastic Injection Mold Machines. I can put into practice the tooling techniques I have learned at Madison College, while working with an innovative, progressive company with an international presence. I hope to complete the AMST program in the near future. I want to help grow with EVCO in the global plastics industry. If you had asked me a year ago today, "Is manufacturing right for me?," I may have answered differently. I can say that a technical education can open doors formerly closed. It can lead you down paths to stimulate your mind, granting you not only insight into major industries, but also increase your earning potential. I believe anyone can, if you are willing to open your mind to the possibilities.*

### **Practices Scaled Across College**

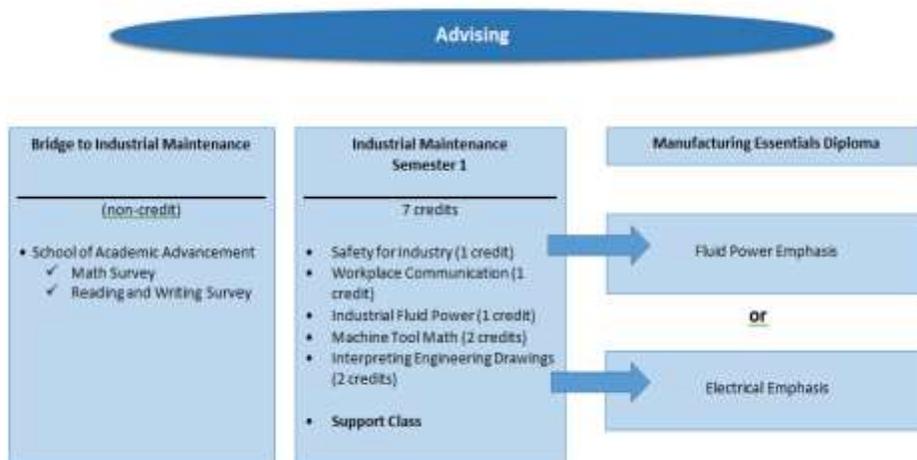
The academic support model developed during the implementation of the *Making the Future* project is being replicated across other areas of the college. In February 2015, the two schools implemented the Construction and Remodeling Essentials Certificate program using the same model developed for the Manufacturing Essentials Certificate. Two cohorts (over 20 students in total) have completed the certificate. Two more cohorts will run in spring and summer 2016. Madison College seeks grant funding to run two additional cohorts in spring and summer 2017.

## Construction & Remodeling Bridge Pathway



Based on the recommendations of the College's Industrial Maintenance Advisory Committee, the College implemented an Industrial Maintenance Bridge that leads to a Manufacturing Essentials Diploma with a fluid power emphasis or a Manufacturing Essentials Diploma with an electrical emphasis (see visual, below). Due to the academic rigor of the Industrial Maintenance coursework, students in this program will receive two semesters of enhanced academic support. The first cohort of the Industrial Maintenance Bridge begins in January 2016. Madison College plans to offer two cohorts of Industrial Maintenance in fall 2016 and spring 2017.

## INDUSTRIAL MAINTENANCE BRIDGE PATHWAY



The first cohort of the Bridge to Biotechnology Laboratory Technician will begin in April 2016. Like the Industrial Maintenance Bridge, the academic rigor of the courses necessitates two full semesters of enhanced academic support (see visual, below). We project running spring 2017 and fall 2017 cohorts.

## Bridge to Biotechnology Laboratory Technician



In addition, Manufacturing Essentials went through the WTCS approval process to be embedded in the Fabrication/Welding program and is currently going through the approval process to be embedded in the Industrial Maintenance program as a less-than-one-year technical diploma.

### **Student Success Stories**

We have endless student success stories due to the success of this project, below I would like to highlight a few.

#### ***Spotlight on Benjamin Marlowe, CNC Operations Student at Madison College.***

Ben Marlowe is a Madison College student who earned certificates in Manufacturing Essentials and CNC Operations. He also received a college-wide honor at Madison College's Annual Celebration of Student Success Ceremony this past spring. Claudette Zweifel, Madison College's Advance Wisconsin – Manufacturing program coordinator, nominated Ben. Here's what she had to say:

"Ben inspired me with his story, his journey, and how far he has come as a successful learner at Madison College. Ben has a diagnosis of Cerebral Palsy. Due to his disability, Ben spent much of his youth being pulled out of school to attend therapy. He fell behind in school, especially with his reading and math skills. Ben recognizes this as an adult and is working hard to make up for the lost academic time he experienced in grade school and high school.

Ben completed TAACCCT grant-funded Manufacturing Essentials Certificate and the CNC Operations Certificate. Ben wants to continue on with the grant's next cohort of CNC Set-up Technician Certificate next year. He is eager to learn and improve his skills to be successful in the classroom and on the job.

Ben sets a good example in class by working hard and getting his work done on time. He views school as his job. He believes his grades are like his paycheck; his attendance is like punching a clock. Ben is conscientious of learning the machines he is working on. He realizes that on the job you are not able to

call a friend or look something up; you need to be confident in your skills! It is an honor to know Ben and nominate him as an Exemplary Learner!”

Each Advance Wisconsin– Manufacturing program can change students’ lives. Our programs are structured in a way to help people gain the confidence they need to improve their skills to get a good job.

***Spotlight on Alfredo Gomez, Machine Tooling Technics Student at Madison College.***

When Alfredo Gomez lost his manufacturing job of 24 years, he knew it was time to return to school and resume his education in order to build a better career to support himself and his family.

Currently training in Machine Tooling Technics at Madison College, Alfredo had a lot of work to do before getting into the program. His first step at the college was to earn his GED. That was followed by three certificates and several credentials in the area of manufacturing funded by the TAACCCT Advance Wisconsin Manufacturing grant. Plus, he took classes to improve his English language skills. Now he is working toward a technical diploma in Machine Tooling Technics, which prepares students for careers in tool and die making, mold making, CNC programming, quality control inspection, and precision and repair machining.

Alfredo has approached his education at Madison College with such enthusiasm that he won the Exemplary Student of the Year Award for the School of Applied Science, Engineering, and Technology for 2014-15. Claudette Zweifel, the coordinator of his program, noted Alfredo’s dedication, work ethic, and outstanding character. One of his instructors said, “Not all students easily transition from the TAACCCT program into the Machine Tool program, but Alfredo has earned the respect of the other students by working long hours in the shop and being a natural leader.”

Alfredo followed a similar path of many Mexican immigrants to the United States. As a teenager, he started working in the farm fields of California, where his education took a back seat to day-to-day survival. After that, Alfredo moved to Wisconsin to live with his uncle, where he was hired by Trostel, a manufacturer of custom rubber products and compounds. He had a long run there as a machine operator until they moved their operations out of the United States and laid off many of their workers, including Alfredo.

Now, with the opportunity of education and a revitalized career, Alfredo is distinguishing himself among his classmates. He organized a group of students from Whitewater to carpool to school, and he makes sure others around him are learning by helping them with their English and technical training. It is important to Alfredo that no one feels left out or falls behind in their school work. He said, “This has been a great experience. What I have learned in the United States at the college level has exceeded my expectations.”

Most recently, thanks to his training at Madison College, Alfredo was hired as a mold technician by a company located close to his hometown, and they are allowing him to work part time until he completes the Machine Tool Technics diploma. Given Alfredo’s strong work ethic and positive attitude, it sounds as if that company is lucky to have him.

Successful student outcomes like those mentioned above would not be possible without strong partnerships between the School of Applied Science, Engineering, and Technology (ASET) as well as the

School of Adult Basic Education (SAA). ASET and SAA contribute their recent change in programming and growth due to the work that was developed and implemented under this project. The School of Applied Science, Engineering, and Technology has gone through the WTCS process of creating and getting approved two less-than-one-year technical diplomas, embedding Manufacturing Essentials in the Fabrication/Welding program and the Industrial Maintenance program. In addition, Madison College recently applied for a HB-1 grant where these two schools are partnering once again to propose a Bridge to Manufacturing Essentials with an electrical focus model to serve underprepared individuals over a four-year span. SAA has replicated their bridge programming among other programs around the college.

The TAACCCT Advance Wisconsin Manufacturing program has been a very rewarding project for the college and for the staff intimately involved. Many are proud to have contributed to the work and to have been a part of changing so many lives in a positive way. In closing, we would like to share a quote from a former student who was one of our several busy students juggling work, life, and school. "I am very grateful to Promega, Madison College, and the family who watch my son," Magally said. "My mother says to take advantage of these opportunities now because they may not come again." That is what she is doing, with faith that it will all pay off in the future!

## Milwaukee Area Technical College (MATC)

### TAACCCT Grant Narrative

MATC's original scope of work was to: "establish a model pipeline and pathway approach to align with manufacturing best practice." Educationally, MATC was to "emphasize competency-based, portable credentials including credit for prior experience; (and to) establish curriculum that is stackable and connected to college and industry standards". The delivery included: "increasing education and training capacity in these programs" while "encouraging the development of apprenticeship models, continuing education models and life-long learning." The project planned to increase "three tracks: entry level, intermediate, and advanced." After the first cohort and prior to solidification of the tracks, the project took a different direction: to encompass three tracks based on specific skills: Engine Lathe, Milling, and Welding. As of this writing, MATC served 371 students, with 146 completers, a 39% overall completion rate for *Making the Future*. They will likely reach the original goal of 385 students that may be realized with a specific TAACCCT participants due to a partnership with the Hispanic Chamber of Commerce, scheduled to begin training this April. The DWD returned wage completion data report states 54 of the students (37%) employed prior to TAACCCT training received wage increases.

*Making the Future's* operations team chose to highlight major accomplishments specifically related to student success, which is key to the college's mission, vision, and values (the consortium lead's input was incorporated to the project as a whole). The topics chosen include those with the most impact to students: 1) ABE bridge course that was built into the three certificate options (Engine Lathe, Milling, and Welding); 2) Improvements to internal collaboration; and 3) Sustainability. These categories often overlap, especially with consideration to internal collaborations.

#### **Bridge Course/Contextualized Math**

The MATC Contextualized Adult Basic Education (ABE) math course that was aligned with the Welding and Machine Tool certificate trainings. The course curriculum was structured within Delores Perin's definition of ABE contextualization: "The practice of systematically connecting basic skills instruction to a specific content [area] that is meaningful and useful to students."<sup>1</sup>

MATC's contextualized courses provide instruction with the primary objective to teach the basic skills of reading, writing, and/or mathematics (in the context of a specific subject area) "...for the purpose of meaningful application." The teaching of English, reading, or math is contextualized to what each student needs as it relates to standard content of an Occupational college-level course. Contextualized ABE math lessons are tailored so that students are able to apply fractions or multiplication to real-life welding situations. Similar learning methods are contextualized in English and reading lessons.

Using basic skills math as a companion to the contextualized math courses was a factor that allowed for greater success. In July 2015, MATC presented at a state-called conference at Wisconsin Indianhead Technical College. The college was one of four presenters and the MATC's research findings (provided by a METTE sub-grant award) allowed for statistical analysis to see the relationships between contextualized math coupled with the ABE math support in Welding and Machine Tool. This analysis

found that students who passed the ABE math support course compared to those who didn't pass had better performance overall. See Figure 1, below.

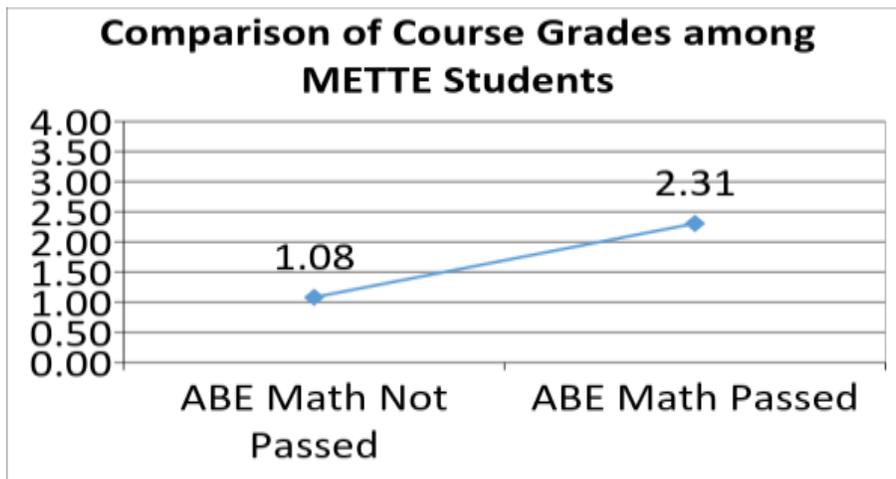


Figure 1

Regarding completers, we saw the most success in our partnership with the Hispanic Chamber of Commerce (HCCW) cohorts who participated in welding technical training at our campus in West Allis. These cohorts had basic skills math and basic skills English embedded into the core curriculum, and class schedules that were customized to fit the needs of the participants (e.g., courses ran during hours of 2<sup>nd</sup> and 3<sup>rd</sup> shifts). The HCCW participants' rate of completion was 64%, compared to the other welding cohorts' completion rate of 38%.

The impact of the ABE component is clear in TAS, as the Welding program incorporated basic skills math for spring semester 2016 into its general operating budget. Other divisions considered adding basic skills companion courses. This contextualization model was shared with the School of Liberal Arts & Sciences (LAS), which added to its case to develop contextualization in its design of English and math courses. LAS' approach is to offer the experience and talent of its faculty as applied to programs in TAS, and to design programming that fits the needs of these programs. Last spring a manufacturing focus group developed a list of essential and highly-desired soft skill qualities. An M7 manufacturers group met last fall to refine that list.

LAS leaders have proposed a contextualized course on Job and Career Readiness geared toward TAS, Business, and Allied Health. The course would replace courses in English and Economics, with the focus of targeting essential and highly-desired soft skills, coupled with written and oral competencies in the workplace. The timeline proposes this new course (2-3 credits) is expected to run by fall semester 2017. Twenty-one learner-supported sections in both math and English are running in spring semester. This broader impact of the ABE support courses would not have been realized without this grant.

### **Improved Internal Collaboration**

Collaboration throughout several divisions of the college has either been built or enhanced during grant implementation. *Making the Future* originated with the School of Technical and Applied Sciences (TAS), two advisory groups, and Grants & Resource Development; the team offered collaborations with other

departments to bring awareness of the grant throughout the college. Grant funding paid for a new full-time data analyst position, and allowed the core team to hire an Education Assistant and a Professional Development Assistant. These positions added greater capacity for further student support and data analysis, and built bridges between departments and divisions. The Education Assistant was retained through another source of funding. The data analyst position carries through two additional rounds of TAACCCT. Relationships have also been enhanced through more effective cross-functional teams and broader collaborative efforts, which realizes better communication college-wide.

A core value at MATC is collaboration. One of our efforts involved other divisions through training. An example is the 2015 CAEL training that administration, staff, and faculty attended from every campus. [A committee was formed to inform the division of Academic Affairs about grant happenings and provides opportunities to be a part of cross-functional work teams and/or core committees.] Additionally, collaborative efforts with the on-campus Military Experience Service Office (MESO), has a dedicated committee, shared with CPL. Other departments, including Registration, Recruitment, and Tutoring, are involved within further development of the evolving CPL policy and procedures. The funding from *Making the Future* allowed the work to build and maintain meaningful work relationships across each campus, and offers support to other grant projects, while keeping student success at the forefront.

**Sustainability – MATC**

The college’s strong commitment to developing partnerships and community collaborations will be sustainable beyond the grant. Partnerships in the following areas were developed through grant activities and will continue:

- **Educational Partners:** Sustain and increase partnership opportunities with institutions of higher education to create a pipeline to MATC.
- **Workforce Development:** Sustain and improve MATC’s responsiveness to the demonstrated needs of community businesses and industry.
- **Graduate Job Placement:** Sustain and increase partnership opportunities to improve job placement rates for graduates in their chosen fields of study.
- **Engagement:** Sustain and increase effective relationships with area businesses and community-based organizations, such as Employ Milwaukee (previously the Milwaukee Area Workforce Investment Board). See referral statistics, below.

**Employ Milwaukee: TAACCCT Referrals**

Recruitment: eBlast to prospective referrals	1,070 individuals
# Total Referrals	130
# Enrolled in Training	17
# Enrolled Veterans	2
# Individuals w/Intensive Services	16
# Full-time employment after training	7

- **Connections:** Sustain and improve outreach programs to key partners, including alumni. One of our notable efforts is that of Collabor8, a professional network that meets monthly to share ideas/best practices, ways to streamline, and to build a network of contacts in a number of public and community organizations.
- **Efficiency:** Sustain and increase participation in statewide or regional collaboration or efficiency initiatives, such as the Milwaukee 7.

The TAACCCT 2 team strengthened cooperation and collaboration across divisions and departments on all four campuses to promote the grant. For instance, the current School of Pre-College's Faith-Based Organization (FBOs)/Community-Based Organization (CBOs) Network of over 40 organizations was used to inform, recruit, engage, and assist prospective students who enrolled in manufacturing training certificate programs. These partnerships provide an allegiance to support underrepresented individuals and families throughout Milwaukee from education and advocacy to supportive services.

MATC's community partnerships make it possible for students to receive wrap-around non-grant funded support services-and notifications, including but not limited to:

- Transportation assistance (i.e., bus passes provided to students);
- Childcare assistance;
- Comprehensive orientation that brought key staff throughout the school in one place to discuss services available to students, such as Financial Aid;
- MATC's JOBSshop, WiscTechConnect Job System, internship opportunities posted on BlackBoard, internal and external job fairs, and job leads;
- Academic Support Centers/Tutoring: Six students incurred over 2,300 minutes of support time in our primary Academic Support Centers at the Downtown campus (through fall 2015);
- Student Accommodations: Of the participants who self-reported, 13 have disabilities;
- FSET services: 17 students received services from FSET (through fall 2015);
- Financial Aid, including information on scholarships: 199 students were eligible for Pell grants
- Academic Advisors and Counselors: More than 70 students met with advisors or career counselors during the course of their training program
- Professional development services such as resume writing, mock interviews, job interview clothing banks, and time management that was led through the grant's Professional Development Specialist position;
- Encouraging e-mails and helpful reminders (such as school closings); and
- MATC application and Scheduling: Operations' team registered each student for the training program(s) so they could focus on other areas of concern. We provided help in completing all required application materials as well.

These services help to minimize or eliminate barriers to success so students realize and reach their fullest potential academically, professionally, and personally.

Sustainability encompasses both short- and long-term strategies. Due to the grant, 50 of our students are actively enrolled in TAS programs; four (4) additional students have graduated with a technical diploma. Also, our partnership with the Hispanic Chamber of Commerce (HCCW) includes two additional Welding cohorts, scheduled to begin the ABE courses in late spring and summer of 2016. Funding for these cohorts may be provided through ResCare, MATC Foundation, Mayor's Initiative Manufacturing Fund, and contracts with MATC's Office of Workforce & Economic Development (OWED).

MATC and three other technical colleges have a long-standing relationship with the Milwaukee 7 (M7). M7 is composed of hundreds of leaders in the business community from seven counties in southeastern Wisconsin. Activities include a Welding Fabrication Focus Group comprised of manufacturing organizations such as GenMet; JB Friction & Fab Corp.; Jorgensen Conveyors, Inc.; Kapco Inc.; KSM Industries, Inc.; Rychtik Welding & Manufacturing, Inc.; Super Steel LLC.; and Telsmith. Each of these employers specifically concentrate on talent development in the manufacturing sector. The Dean of TAS has been actively working with the leaders of M7 throughout the duration of the grant to identify skills for entry-level welders. This discussion opened the door for dialogue on essential skills and creating a welding curriculum to meet the needs of the region. Through this collaboration we were able to develop a Welding 101 pathway with the TAACCCT grant, with support from faculty, the M7, and employers. This curriculum has been modified based on feedback from students and employers. Welding 101 has been incorporated into the official state pathway initiative, currently in the approval process. See Figures 2 and 3 for the proposed pathways, below.

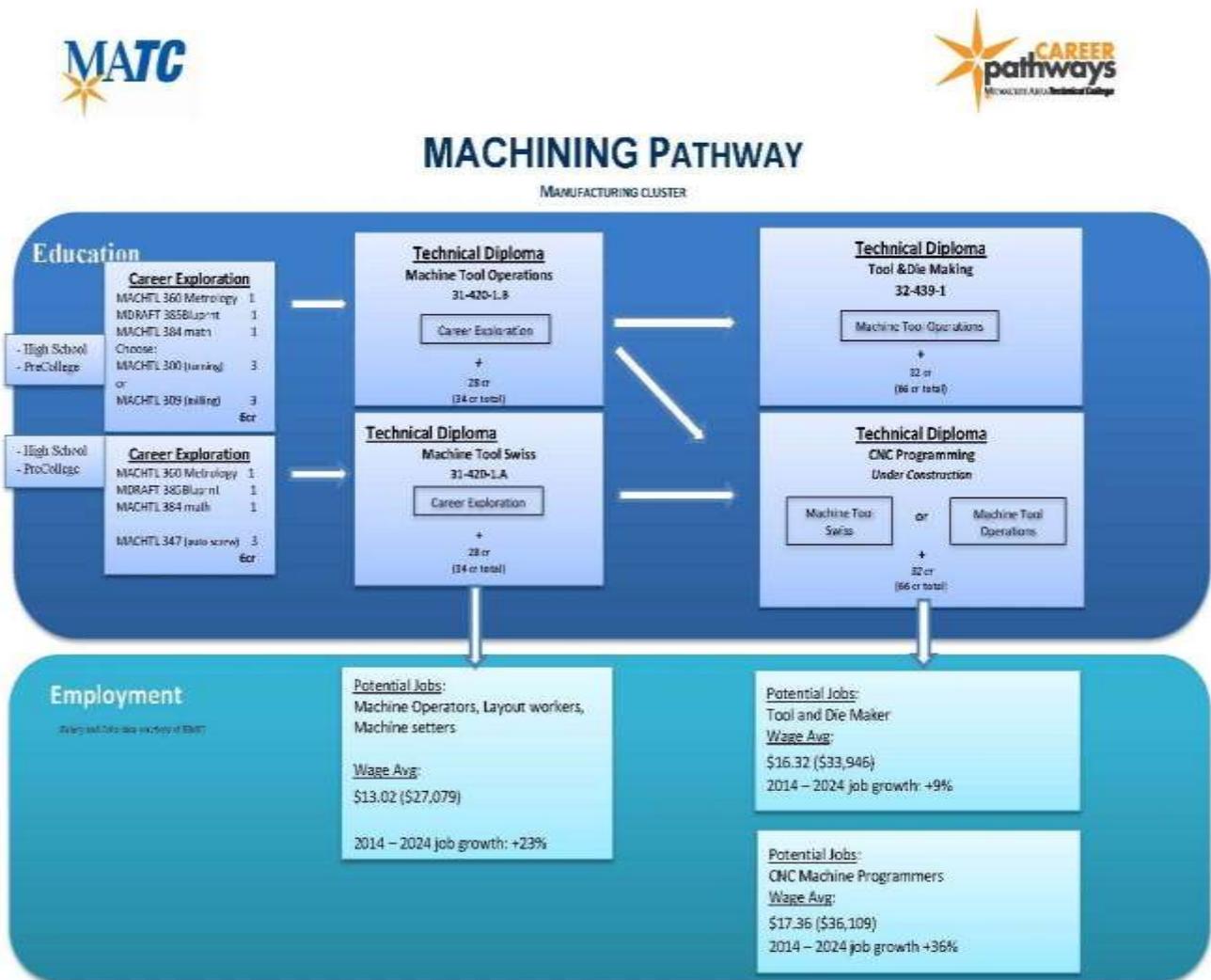


Figure 2



## WELDING PATHWAY

MANUFACTURING CLUSTER

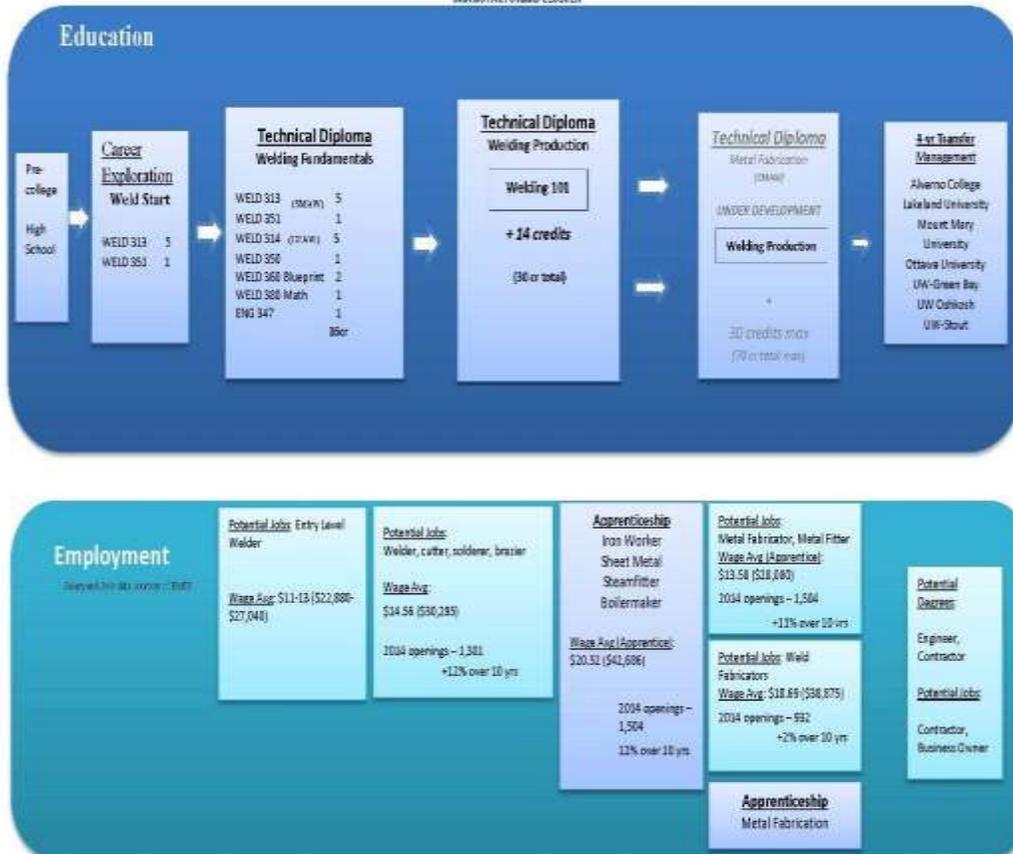


Figure 3

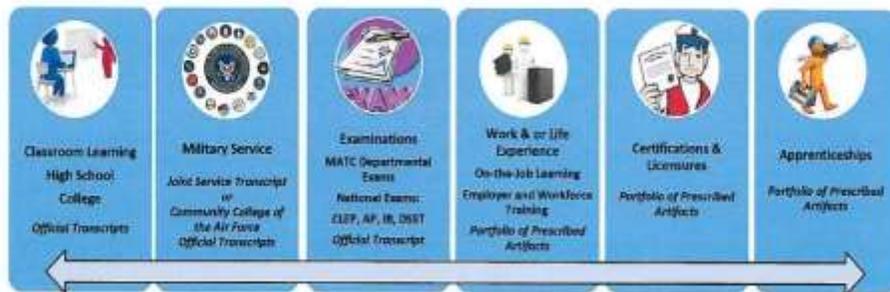
### Sustainability – Consortium

This round of TAACCT has allowed MATC to re-design its policies and procedures related to Credit for Prior Learning and Work Experience (CPL), formerly known as Academic Standing at MATC. *Making the Future's* Project Coordinator is a standing member of the college's CPL/Veterans Steering Committee. This committee is charged with implementing a variety of initiatives that MATC is currently implementing, including ACE's tool for military and CAEL's intake tool. This committee is also charged with ramping up our services for veteran students. Through the duration of the grant, 13 students have transferred 116 credits to MATC. See Figure 4, below, that visually details MATC's new CPL process.

## Credit for Prior Learning and Work Experience (CPLE) formerly Advanced Standing



CPLE is the term used by colleges to describe the process of earning college credit from learning. CPLE is measured and awarded only for learning, and not for the experience. Below are the sources of college-level learning and the artifacts used to evaluate CPLE.



**CPLE Language**

CPLE Acronyms	CPLE	Credit for Prior Learning	AP	Advanced Placement Exams
	PLA	Prior Learning Assessment	CE	Challenge Examination
	ME	Military Experience	IB	International Baccalaureate
	WE	Work Experience	CLIP	College Level Examination Program
	TC/TE	Transfer Credit	JST	Joint Service Transcript
	ACE	American Council on Education	AS	Advanced Standing
	CAL	Council for Adult & Experiential Learning	DSST	Defense Activity for Non-Traditional Education Support
	AE	Auto Equate	TIS	Transfer Information System
	For information and questions regarding Credit for Prior Work and Life Experience, students should visit MATC's website to access the following:		<b>Transfer-In Contact Info</b> Veng Kheng - <a href="mailto:vkeng@matc.edu">vkeng@matc.edu</a> Lana Rowakowik - <a href="mailto:lrowak@matc.edu">lrowak@matc.edu</a> Tim Morgan - <a href="mailto:tmorgan@matc.edu">tmorgan@matc.edu</a> Please submit Advanced Standing (CPLE) Forms to <a href="mailto:advstanding@matc.edu">advstanding@matc.edu</a>	
	<ul style="list-style-type: none"> <li>CPLE Questionnaire</li> <li>CPLE Inquiry Form</li> </ul>			

**MATC CPLE Resources**

**Staff Resources**  
MATC Portal Page (Departments, Academic Affairs)

- CPLE Policy, Guide, and Work Flow
- CPLE (Advanced Standing) Forms
- Military CPLE
- Links to course matrices for CLEP, AP, IB tests, and certifications
- Links to Auto Equate lists for WTCs, LW System, Private, and Out-of-State Colleges
- UW System Transfer Information System (TIS) <https://www.wiscconsin.edu/transfer/>
- US Department of Education - <http://oae.ed.gov/accreditation/search.aspx>
- Training & Resources

**Student Resources**  
MATC Website (Student Services, Get Involved)

- CPLE Guide
- Military
- Transfer Credits
- Work/Life Experience
- Credit by Exam
- Certificates/Licensure
- FAC's
- CPLE Questionnaire
- CPLE Inquiry Form

<http://www.matc.edu/student/resources/cple/index.cfm>

MATC is an Affirmative Action/Equal Opportunity Institution and complies with all requirements of the Americans With Disabilities Act.

CPLE 12/15

Figure 4

Policies and procedures, along with lessons learned, have been applied directly to two additional TAACCCT awards: INTERFACE and ACT for Healthcare (rounds 3 and 4). The core team has created a variety of standardized reports and written documentation to support TAACCCT that has been carried through to the additional rounds. Examples include standardized tracking methods at the client reporting system level as well as external master documents and an adaptation of the consortium's Program Participant Summary and Equal Measure's data dictionary template that were applied to ACT for Healthcare.

With consideration to lessons learned, the core team determined the following areas provided continual challenges that affected the overall success of the grant:

- State approved pathway certificates were not developed for these trainings, which made it difficult to implement into core curriculum in the machine tool and welding programs. Both INTERFACE and ACT for Healthcare developed state approved pathways in the planning year (prior to grant implementation).
- Collaboration with Employ Milwaukee, formerly the Milwaukee Area Workforce Board (MAWIB), was not fully developed or utilized in the planning stage and in the first two years of the implemented grant. This is attributed to challenges, such as key staff turnover, a contract that did not spell out reporting requirements to MATC, as well as re-structuring of agency staff.

INTERFACE was cognizant to build its relationship at the beginning of the grant with Employ Milwaukee, which has led to a number of best practices and successes realized in the grant.

- Tuition waivers did not offer students much “skin in the game” and the DOL modified the practice for remaining rounds of TAACCCT. This factor, coupled with marketing to the same target groups (CBOs), did not offer a broad enough population base for the trainings. Even though there was a robust information session, followed by an orientation process for the students, attaching to program students and additional targeted markets would have been beneficial to the overall success. INTERFACE and ACT for Healthcare adopted elements from this grant, but marketed the program to program students without waivers of tuition or books.
- The STM machine was under-utilized because only a few staff members had training to operate it. The new Associate Dean plans to hire an outside trainer in the future so faculty will be able to incorporate the machine into TAS’s operational work plan.

### **Conclusion**

Funding for *Making the Future* allowed MATC to experiment and examine new ways of work. Our efforts to train Veterans, TAA participants, and adults offered a unique pathway to three training tracks that has realized student success, a core value of the school. Through a variety of partnerships that encompassed Milwaukee’s employers, economic development organizations/initiative, CBOs/FBOs, as well as a variety of internal department leaders, we were able to harness value that will be recognized for now and future endeavors. This funding allowed us to improve internal processes and procedures, create state-recognized pathways, overhaul the CPLE system for the college, improve external and internal collaborations, and offer a robust plan to sustain the efforts after funding ends. We have applied best practices to many areas throughout the college and look forward to the continuation of factors we consider successful and far-reaching (e.g., contextualized math). This experience has been beneficial not only to the entire college community, but also the Milwaukee manufacturing arena.

The following page contains statements from our TAACCCT students.

<sup>1</sup>The definition’s origin derived from Perin’s: [Facilitating Student Learning through Contextualization: A review of Evidence](#) (2011).



“...I just wanted to give you a quick update on how things are going since I completed the grant welding program in May. I have been accepted into the Local 8 Ironworkers Apprenticeship program. I was rated #3 out of about 60+ applicants. I got my first job placement on July 27th. I have been working at the new Northwestern Mutual building job site for almost 2 months. Things are going really well- love my new job!

I want to thank all of you for the opportunity to get into the welding grant program. It really gave me a great base for what I am doing in my new career. The things I learned during the welding program have made this transition very smooth...Obviously, I still have lots to learn but I feel like I am a step ahead of the game.

Again, thank you all for everything you did to make my experience at MATC a great one...”

**Marriah G., Ironworkers Local 8 Apprentice**

”Thank you for offering this manufacturing class...I was able to successfully complete the Engine Lathe program and was able to further my education in the CNC field. Right now I have obtained full-time employment in the CNC manufacturing field. Because of the TAACCCT training program, I have bettered myself because I have successfully learned a new trade. I hope your program will be able to help other people that are in my position.”

**Denise N., Engine Lathe Completer**

“My time in the classroom was always enjoyable.... From group discussions to lunch breaks, it was all well worth it..... Basil was my instructor... He was polite, patient, and very well informed about the trade.... I would rate my experience at MATC West Allis 10 out of 10..... My instructor, Basil, did an excellent job as a teacher...”

**Terry T., Welding Completer**

“This training was very helpful, it got me a really good employment in the manufacturing industry, it didn’t just give me a good employment it also got me a welding career, I’m very thankful for the TAACCCT II training.”

**Cristan R., Welding Completer**

## Moraine Park Technical College (MPTC)

### TAACCCT Grant Narrative– Welding Boot Camp

The Welding Boot Camps at Moraine Park Technical College provided a pathway to long-term careers. The support provided by the TAACCCT 2 grant allowed MPTC the opportunity to offer short-term training opportunities that would provide long-term solutions to unemployment and underemployment for the people who entered the boot camps, which were designed as short-term certificates for rapid training and employment.

An onboarding process, complete with testing and tutoring, resume and cover letter creation, and employer interviews preceded boot camp enrollments and provided the internship opportunities that were the catalyst for job offers upon completion. Strict attendance requirements, managed through intensive, intrusive advising, provided the support needed for most to successfully complete the rigorous three-month boot camp and move on to long-term careers.

Over the course of the boot camps, the impact of intensive advising with boot camp participants and employer engagement, both with interns and across the community, became the backbone of success in retention and employment.

#### **Employer Engagement**

The biggest impact for MPTC was the engagement of area employers who provided the internship opportunities for students while working collaboratively with each other. This cooperation of businesses, a relationship that continued to build through the boot camps, was the basis on which employer engagement was built. Area employers worked together, putting any competitiveness aside, in the interest of creating opportunities. As Sue Roettger, Vice President of Human Resources at Mid-States Aluminum Corporation stated, “The sum is greater than the parts.”

Relationships had existed for years between Moraine Park Technical College and businesses, but the boot camps provided the opportunity for a different relationship, and a new experience with bringing in new employees, rather than training those already employed by the company. Employers impacted the students by providing an opportunity to find a good fit, and make sure that a career in welding was the end result of that opportunity. As Chad Verges, Senior Regional Human Resources Manager at Mayville Engineering Company said, “It’s a good opportunity for interns to really try this out. They’ve committed to a certain degree, however, they haven’t jumped fully into it, so it gives them a chance to really test-drive the internship – is this something they want to do? Is this the kind of work environment they want? They might enjoy the job but not necessarily like the work environment. This gives them a chance to test-drive it before it is too late.”

By working together, the businesses cross-marketed the openings at all of the companies, making room for people who wanted to work in shops that were larger, smaller, higher or lower production, with variations in culture, welding skill requirements, and physical demands. Participants who didn’t have a good fit in one company, but showed a desire to work and a willingness to learn, easily found work in other companies because of the network of employers. One boot camp completer said, “Because of how the boot camps lay out to include an internship, that gives me a rather nice boost of confidence in

knowing that I will be much more prepared after completion, and a good understanding of what to expect with employment in a welding career.”

Employers and Moraine Park Technical College worked together to strategically create boot camps that appealed to students and met the needs of employers. The result was a collaborative network that offered a variety of employment options for boot camp candidates, and for many people, this offered opportunities they hadn't seen before. In a final reflection paper, James Walsh, student of the summer 2015 Welding Boot Camp said, “My [internship] supervisor tells me I have potential as a welder and I should have no problem getting employed. This is very encouraging. There aren't many people or places willing to teach a skill like this to a beginner. I've applied to a couple companies that had ads in the paper looking for people to train as welders, no experience necessary. These always turned into dead ends. I guessed they were really looking for people who have the skills and experience.”

The collaboration of the businesses in partnership with the internship also offered employers the opportunity to test that fit prior to offering the position. Because the trial existed, and the risk was minimized, employers were encouraged to take a chance on interns that they may not have taken as regular hires. The internship was an extended interview in many respects, with an opportunity for both employers and employees to reconsider each other as possibilities, to work together to establish whether a fit was possible, and to make a decision on the best course for the future. One of the students who gained this opportunity was H.L. Cox, completer of the summer 2014 Welding Boot Camp, who said about the boot camp, “It changed my life. It gave me structure, it gave me discipline, actually gave me a whole new outlook on life because I never thought I would actually be doing any welding because I had never been around it.”

Finally, the impact of the employer engagement was that people found jobs. Within three months of graduation, 86% of completers had been offered a welding position. The goal of boot camps was to move people quickly from unemployment and underemployment to a career – so these rates were a highlight and a talking point to create more buzz around the boot camps. The boot camps had come full circle – by engaging employers in the process, MPTC had been part of a successful career path opportunity, and those statistics were then used to promote each boot camp that followed.

### **Intensive Advising**

The impact of intensive advising on student progress and success was substantial. While advising and case management options existed outside of the boot camps, some participants required more attention. The focus of the advisor, affectionately referred to as the “Boot Camp Mom,” was to provide help even when none was requested, and often when help was rejected. Where regular advising requires a student to seek out the advisor, the Boot Camp Mom sought out the participant – first to push for resumes, next to push career skill training and academic skill building, then throughout the program to check on the reason for an absence, or even a tardy, to help solve personal barriers to continuing the boot camp, to connect participants with resources, and simply to provide the confidence and encouragement that some participants required.

Jo Ann Hall, Dean of Economic and Workforce Development at Moraine Park Technical College, described the impact of the intrusive advising, “They know someone cares about them. They know someone cares if they finish or not. They know someone knows if they're five minutes late and if they show up every day. They know they've got someone to go to get help and get referred to the right

sources if they need it. Oftentimes, they don't know where to go, or how to find their way out of situations, because if they did, they wouldn't need us in the first place. We're providing that guidance and that support all the way along and what they've said is that without that assistance, without knowing that someone cared that much about their success and that they finish, they probably wouldn't have."

The end result, and the impact of the intensive advising was highlighted by a 90% retention rate at the end of the TAACCCT 2 welding boot camps. The ability of the MPTC to help nine out of every ten boot camp participants become boot camp completers is only a result of the guidance, support, encouragement, and advice that followed them through the boot camp.

## Mid-State Technical College (MSTC)

### TAACCCT Grant Narrative – Stainless Steel Welding

The Stainless Steel Welding Certificate developed at Mid-State Technical College has had a dramatic impact on the fabrication needs of the dairy and food processing industry in the Marshfield, Wisconsin region. The nearest post-secondary welding programs were 40 to 100 miles from this industrial fabrication market prior to this program being created in 2013. The industry was relying on in-house training programs as the primary source of skilled welders.

The training model created to deliver this seven-credit stainless steel welding certificate was based on a flexible scheduling system. Students could enter the program the first week of each month with the program running 12 months each year. The goal with this model was to allow adult learners to train up to a skill level to enter a welding career pathway without the barrier of the traditional semester delivery schedule that typically have one or two entry dates per year.

One assumption that was made during the planning phase was that students would follow an individual learning plan and progress through the classes at their own pace in an open lab setting. This system of training involved a mandatory one-week orientation and safety training class the first week of the program. Once that module was completed the students would select 8 to 16 hours of lab time each week to complete the program.

This training model did not take into account the challenges that learners face in scheduling their time to train around other life obligations. It also did not create a cohort, or group learning environment, which can accelerate the learning process when students can work together with their peers. Over 60% of students at this college are Pell Grant eligible which means they represent the poor/working poor socioeconomic group. Research has shown that this group of learners performs best in a relationship-based instructional system where collaboration and team work have a dramatic impact on retention and completion. *Understanding and Engaging Under-Resourced College Students* (Becker et al, 2010) is the primary source of research and educational theory utilized to guide the adaptations implemented to the training model for this program. Apprenticeship is an example of a relationship-based training system that has successfully brought people out of this socioeconomic circumstance and into a middle class mindset that fosters success in school as well in the work place.

A significant change to the delivery of this program was implemented in January 2016. The new model is a cohort-based system where groups of students start together and track through the classes as one group. Completion of the program was well below 25% for students training under the flexible schedule model. The first pure cohort group will finish in April 2016 with over 80% completing the program with near perfect attendance within the group. Beginning with the summer 2016 session, the entire program will adopt this cohort model with five start dates each year: one during the summer session and two each semester. The program will continue to run on a 12-month basis.

The success of this program has carried over to other areas of the college. Last year the welding program at the main campus in Wisconsin Rapids offered a similar certificate in gas metal arc welding (GMAW) to address the short-term needs of adults who could not attend the one-year diploma program. That pilot of this type of short-term pathway training was successful and will be continued in

the future. Another area that is being considered for a short-term certificate modeled after the Stainless Steel Certificate is Machine Tool. Once again, there are adults in the area that cannot leave their jobs to take the program during the daytime delivery schedule. If the college adds this certificate with an evening delivery model it will provide three short-term pathways into the metal fabrication career pathway as a collateral growth in our programs based on the original stainless steel model created by this grant.

One final area of expansion that the college is pursuing with the Bureau of Apprenticeship Standards is a partnership to create a stainless steel apprenticeship program based on the certificate program at MSTC. State funding has been provided to fund the development of the program. The process will begin on March 23, 2016, with a meeting between the state facilitators and the MSTC Stainless Steel Welding Advisory Committee members and other employer partners within the region. The apprenticeship will likely be three years in duration and be built as a hybrid model combining time-based as well as competency-based models. This will allow people who completed the Stainless Steel Welding Certificate prior to entering the apprenticeship program to get full credit for prior learning which will shorten the length of time to complete the credential. It also allows another method of leveraging this program and facility to better serve employers in the region who will be able to train up incumbent workers through this program. This has the potential to significantly increase the training available to the workforce in this area.

This program and the collateral programs that are growing from the original grant certificate have had the greatest impact on students and employers. The relationship that was built with industry in this region has been nothing short of amazing. The bottom line is this industry had grown for decades to include local, regional, national, and international companies built around stainless steel fabrication. These companies have grown based on training their own employees from the ground up. Companies with extensive in-house training programs became the source for trained employees in the area. This resulted in companies recruiting employees away from the manufacturers with significant investments in training. This created a parasitic environment. The program at MSTC is beginning to chip away at that conflict. All companies in this market now have an opportunity to hire new employees with a standard skill set prior to entering their workforce.

A key element to improving relationships with these companies was based on fully communicating that MSTC could provide the best trainees they had ever hired. This was not an easy message to deliver. Some of the first completers to enter the workforce were subjected to interview skills testing that included equipment and techniques that were not part of the MSTC training program. As part of the startup process, MSTC followed up with employers to request their feedback on the skill set that the students were bringing with them from the program. The feedback provided specific information to the program which directly impacted changes to competencies to align with the entry-level needs of the industry. MSTC also requested access to the actual trainers at the facilities to get their input since the grant goals and original training program were highly influenced by managers and administrators rather than the training floor staff. This resulted in numerous curriculum revisions based on direct industry feedback. This built trust and has further elevated how the program was viewed by the employers in the region.

To further capitalize on the development phase opportunity MSTC had the lead instructor make personal visits to every employer on the contact list to spend a half day at each facility during the

summer of 2015. This allowed each company to show the basic elements of the skills they need the entry-level fabricators to possess following completion of the certificate. The instructor was able to show each company the training book with the competencies for each class within the training system. This was a critical moment for the program. The instructor returned with extremely detailed information on the primary operations of the employers to guide further refinements to the curriculum. In addition to training process research during these site visits, MSTC created employer profile information to help the students match their strengths to the employers based on their major processes.

The impact on students is significant from a relationship and trust perspective when the faculty are able to provide detailed information on the employers in the region. That knowledge of the employers and their work processes allow the faculty to reinforce what the students are doing in the lab. The trainers are able to see what the students gravitate to during their classes to help them select the employers where they can maximize their strengths to create a better career match. Some have exceptional detailing skills that will be extremely valuable in the finishing end of the fabrication process, while others are highly skilled in welding pipe. Others show their abilities in plasma cutting and project completion.

Each cohort begins with a discussion on core abilities and team work as a major success strategy. It doesn't matter if a student is a great welder if they cannot get along with others and work as a team. MSTC shows the students the employer referral form the first week and the instructor explains that the trainers cannot provide a reference unless the permission form is signed allowing MSTC to discuss their training with the employers. It is important to note that the student does not get to qualify that permission and most employers will not hire them if they do not allow their trainers to provide information. They have to begin with the end in mind. This builds trust with students so that they are not taken by surprise at the end of their training. Countless students have provided feedback that they had never approached education with that kind of starting point. They thought it was about finishing the credential and this reframed their view of the training process to focus on a career - not the short-term training.

The Stainless Steel Welding Certificate has provided the first local postsecondary training option for the stainless steel fabrication industry in the Marshfield, Wisconsin, region. The initial phase of this program provided a platform for building a relationship with industry. That relationship provided a mechanism to rapidly modify the program to align with standard industry competencies to create the best trainees possible. The jobs far exceed the output of the program at this time. The training system during the grant period resulted in a 25% completion rate. MSTC changed the flexible training model to a cohort-based system to better serve under-resourced students. The first cohort will complete the program in April 2016 and is projected to have an 80% completion rate. This has set the stage for a sustainable training system in the future if the completion rate remains above 75%. MSTC added a Gas Metal Arc Welding (GMAW) certificate program based on the stainless steel certificate. Another direct expansion of welding training at MSTC is the creation of a Stainless Steel Welding Apprenticeship program. The development of that program will begin on March 23, 2016, with a goal of starting the training in August 2017.

# Nicolet Area Technical College

## TAACCCT Grant Narrative

### Overview of Project

Nicolet Area Technical College (Nicolet, NATC, or Nicolet College) began its TAACCCT Round 2 *Making the Future* project in October 2012. At that time, there were only two credentials offered by the college in the manufacturing career cluster: a 14-credit Welding certificate, and a one-year Welding technical diploma. Manufacturing occupations constitute 15% of all jobs in the Nicolet District, which spans 4,000 square miles and is entirely rural. Nicolet College is the only higher education institution in the District, so it is critically important for the college to meet the needs of local employers. As part of the *Making the Future* project, as well as a parallel institutional effort, in 2012 Nicolet set about to work closely with local manufacturers to determine the workforce skills needed by these companies and to develop, deliver, and expand educational programming to meet their workforce needs.

With demand for welding occupations at an all-time high in the District, Nicolet's *Making the Future* project focused on expanding the capacity of the one-year Welding technical diploma (34 credits). The project included physical expansion of the college Welding lab to reach a capacity for 23 students per cohort (from the previous 17); instructional delivery of the technical diploma; and the creation of a Manufacturing Skills & Placement Coach position to assist students in enrolling, persisting, and completing the technical diploma, as well as working with local employers to identify job opportunities and place program graduates into those jobs.

NATC also invested in Welding program improvements beyond the scope of the grant. The college introduced integrated adult basic education instruction in math together with the Blueprint Reading occupational course. In 2014, as part of the college's career pathways development efforts, Nicolet also created a short-term technical diploma that is embedded in the one-year technical diploma.

As part of the *Making the Future* project consortium, Nicolet also committed to participating in consortium-wide objectives including using the Standard Timing Model assessment machine, developing the college's capacity to administer credit for prior learning, and contributing to the outreach, recruitment, and marketing efforts through Advance Wisconsin.

### Summary of Results

Over 3.5 years, \$561,199 has been invested in Nicolet's *Making the Future* Welding expansion program. The overall goals of Nicolet's effort were to increase the academic performance of students in the program, increase retention in the program, increase job preparation skills, and increase job placement opportunities. Performance data for several success indicators shows that the grant activities had a positive effect, especially on the non-academic skills development and job preparation areas. Data regarding increase in academic performance is positive but the change is marginal in comparison. These areas are discussed in further detail in the next sections.

From October 2012 through December 2015, 198 students have enrolled in the grant-funded Welding program, and 100 students have graduated with the one-year technical diploma. Throughout the period of the grant, graduation and retention of the students increased from 72% to 79% with exits or stop-

outs reduced from 28% to 21% of program participants. Nicolet has seen a marked increase in the job placement rate for students in the Welding program from 46.15% in 2011 to 82.61% in 2015.

### **Focus of Impact Analysis**

This analysis focuses on the impact of the Manufacturing Skills & Placement Coach position as a new strategy introduced in Nicolet's *Making the Future* project. This type of position was both new to Nicolet College and also new in the Wisconsin Technical College System. This Coach position, now sometimes called a "navigator" or "intrusive advisor," was proposed to be piloted in the Welding program because the students had not been very successful in a variety of academic and non-academic areas. A majority of students in the program were non-traditional, meaning they were older than the traditional 18-24 age range of college students, and most of them had previously been employed in low-skilled jobs. Some had been unemployed for quite some time. These non-traditional students faced many barriers such as low math skills, lack of experience in a higher learning environment, family responsibilities, and various other issues that needed to be addressed in order for them to be successful in the program.

The objective of the Coach position was to provide program-specific academic, non-academic, and job placement assistance for students in the program. The idea was to hire a person with a combination of manufacturing and student support experience so he could "coach" the students in the program content, provide advice and referral for students needing to develop their non-academic skills, and help make occupation-specific connections with local employers so as to facilitate the placement of program graduates into available jobs.

Having a Coach to personally advise each student and assist them with their needs was expected to increase their academic achievement, prevent them from dropping the program, increase their job preparation skills, and increase the rate of job placement across the program. These results are detailed below.

### **Timeframe of Results**

Measures shown below include 2011 and 2012 as baseline performance years prior to implementation of any of the grant strategies. Grant-funded activities began on October 1, 2012 (FY13). The Manufacturing Skills & Placement Coach first started assisting students in spring 2013. The Coach position became vacant in spring 2014 and was again filled in late fall 2014. This information is provided as a context within which to view the performance measures for each year. The Report Year used for each of the indicators begins July 1 and concludes June 30. FY2015 was the most recent year for which there is complete data.

### **Academic Achievement Results**

In the Wisconsin Technical College System, the main measure of academic achievement is Course Completion. This measure is based on the number/percentage of students passing at least 80% of their courses within a year<sup>1</sup>. As shown in the graph below, even though enrollments almost doubled due to

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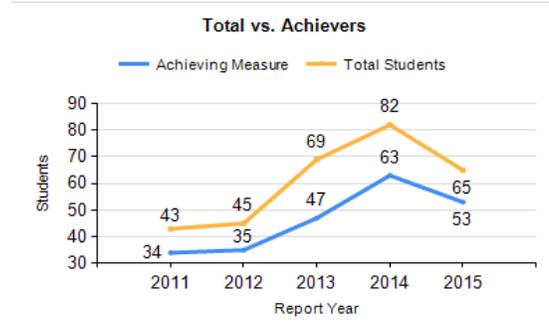
<sup>1</sup> See <http://mywtcs.wtcsystem.edu/data-systems-grp/grp/data-description> for detailed descriptions of indicators.

the expanded capacity of the program, the academic achievement rate also increased 3.1% over the five-year span.

Program Indicator 5 Year Trend  
C200 Course Completion  
(31-442-1) Welding

Nicolet Area Technical College

Report Year *	Achieved Measure	Total Students	Percent Achieving
2011	34	43	79.07%
2012	35	45	77.78%
2013	47	69	68.12%
2014	63	82	76.83%
2015	53	65	81.54%



\* Report Year is the fiscal year that the measure is final.

Overall change  $(\Delta = y-x / x)$  **3.1%**

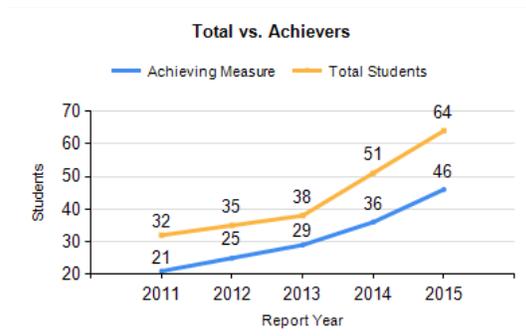
### Program Retention Results

Typically in a one-year technical diploma, we would consider a semester-to-semester retention rate as the primary indicator of retention success. However, the Welding technical diploma is a 34-credit program. A typical full-time student at Nicolet takes between 12 and 15 credits per semester. Asking students to take 17 credits in a semester, as the Welding program would require in order to finish in a year's time, is almost certainly a recipe for failure unless the student has no barriers. Coupled with the fact that most of Nicolet's students attend part-time, the second year retention is a better indicator to see if students are returning to complete their credential. Although the fall to spring retention decreased by 10.3% over the five-year period, the second year retention increased by 9.5% as shown below.

Program Indicator 5 Year Trend  
 F200 Second Year Retention  
 (31-442-1) Welding

Nicolet Area Technical College

Report Year *	Achieved Measure	Total Students	Percent Achieving
2011	21	32	65.63%
2012	25	35	71.43%
2013	29	38	76.32%
2014	36	51	70.59%
2015	46	64	71.88%



\* Report Year is the fiscal year that the measure is final.

Overall Change ( $\Delta = y-x/x$ ) = +9.5%

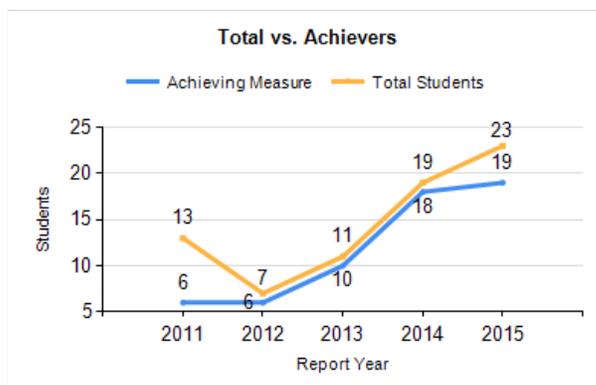
**Job Preparation and Placement Results**

Job preparation and placement services provided by the Coach appear to have been very successful in linking program students with local employers. The two indicators provided below show the job placement rate for all students in all jobs, and then for program students in Welding jobs. The baseline “Total Students” number represents the number of graduates who responded to the graduate follow-up survey, which is not necessarily all students who graduated from the program.

Program Indicator 5 Year Trend  
 I300 Job Placement - All Employment  
 (31-442-1) Welding

Nicolet Area Technical College

Report Year *	Achieved Measure	Total Students	Percent Achieving
2011	6	13	46.15%
2012	6	7	85.71%
2013	10	11	90.91%
2014	18	19	94.74%
2015	19	23	82.61%



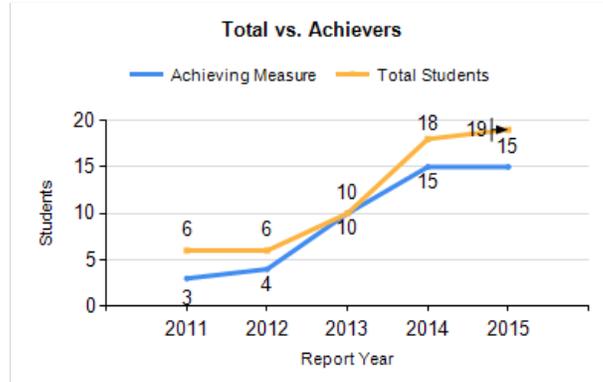
\* Report Year is the fiscal year that the measure is final.

Overall Change ( $\Delta = y-x/x$ ) = +79.0%

Program Indicator 5 Year Trend  
1600 Job Placement - Related Employment  
(31-442-1) Welding

Nicolet Area Technical College

Report Year *	Achieved Measure	Total Students	Percent Achieving
2011	3	6	50.00%
2012	4	6	66.67%
2013	10	10	100.00%
2014	15	18	83.33%
2015	15	19	78.95%



\* Report Year is the fiscal year that the measure is final.

Overall Change  $\Delta (y-x/x) = +57.9\%$

**Impact of Strategies on Nicolet College**

Expanding Nicolet’s Welding lab to serve more students, as well as providing the services of the Manufacturing Skills & Placement Coach, have provided measurable economic benefit for the College and the northern Wisconsin region.

Enrollments – A straight calculation of revenue from tuition and fees over the five-year period shows the return on investment the College has realized from the program expansion.

Year	FTEs Enrolled	Total Revenue*
2011	25.0	\$133,900
2012	29.3	\$156,931
2013	40.3	\$215,847
2014	53.3	\$285,475
2015	42.0	\$224,952
<b>68% INCREASE From 2011 – 2015</b>		

\* Based on gainful employment cost to student of \$5,356 to complete the program; not indexed

Retention – The services provided by the Manufacturing Skills & Placement Coach resulted in increased retention of the students from year to year. To express the value of the retention services in dollars, we looked at revenue loss mitigation. That is, comparing the revenue in the most recent year to the revenue in the baseline year, and the loss from those revenues for students not returning.

Year	Total Revenue Expected*	Estimated revenue lost from non-retained students (Total cost / 2 years x # students not returning)	Retention economic impact
2011	\$133,900	\$24,102	\$109,798
2012	\$156,931	\$26,780	\$130,151
2013	\$215,847	\$24,102	\$191,745
2014	\$285,475	\$40,170	\$245,305

2015	\$224,952	\$48,204	\$176,748
61% INCREASE From 2011 – 2015			

Since early on in the grant period, the value of the Manufacturing Skills & Placement Coach position was obvious from direct feedback from students and local employers. Nicolet scrutinized its delivery of student services and began thinking about different models of serving students. The college has added other similar positions in the Information Technology, Business, and Health Occupations areas. The college has also added more “sector liaison” positions to help grow employer engagement in college programs, and to improve student-employer connections that will enhance career pathways opportunities.

**Impact of Employer Engagement on Nicolet College**

The impact of the *Making the Future* project on employers in the Nicolet College District can be described in both qualitative and quantitative terms. Over the course of the three-year grant, Nicolet College was able to build strong relationships with 12 employers who became very involved in developing the welding curriculum, hosting tours and attending career events for the students, and donating scrap steel for use in the program. All told, these employers donated 116,678 lbs. of steel for instructional use in the welding lab, at a value of more than \$54,000.

Employment preparation services provided by the Manufacturing Skills & Placement Coach had a significant impact on the employment rate of the students in their field, and consequently a significant economic impact for the students and the Nicolet District as a whole. Using the increase in employment (+40 jobs) multiplied by the average wage for welding-related jobs in the District (\$16.21/hour), the salary and wage input into the economy by employed program graduates over the last three years has been \$1.35 million. With an economic multiplier<sup>2</sup> of 1.47%, the total impact of these jobs on the economy of the Nicolet District has been an increase of \$1.99 million in just three years.

**Impact of Consortium Activities on Nicolet College**

Finally, Nicolet College has been positively impacted by the work of the *Making the Future* consortium as a whole. The consortium-level goal of building capacity to assess and award credit for prior learning challenged the college to develop policies, procedures, and marketing activities to administer assessments for awarding credit for prior learning and experience. The college has adopted these policies and practices college-wide and continues to train staff and develop competency assessments. In December 2015, the welding program held the college’s first credit for prior learning event where competency assessments were offered to students interested in enrolling in the program. More than ten prospective students took advantage of the assessments, and the program awaits results of the assessments to see if the students were successful.

Consortium meetings have resulted in new partnerships between the project leads and the colleges to develop shared programs, career pathways, and training activities. All in all, the TAACCCT II project has benefitted Nicolet College and, most importantly, provided opportunities for our Welding students to indeed “*Make their Future.*”

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<sup>2</sup> Source: Economic Modeling Specialists International, Analyst product.

## Northcentral Technical College (NTC)

### TAACCCT Grant Impact

Northcentral Technical College (NTC) immediately sought input from local manufacturing partners when project discussions began for the U.S. Department of Labor's Trade Adjustment Assistance Community College and Career Training (TAACCCT2) grant program. The partnerships between NTC and local industry have always been strong, but this grant opportunity allowed the college to build even stronger partnerships for its machine tool and welding programs, and those partnerships have led to better partnerships in other manufacturing areas as well.

After meetings with industry, faculty, local workforce development board personnel, and college leadership were held, a list of training items needed to accomplish the goals of industry was included in NTC's Statement of Work in the grant application. Grant collaboration with partners led to new initiatives in the welding and machine tool areas. Both labs on the main Wausau campus were remodeled as a result of the grant's manufacturing emphasis with additional space provided for even more state-of-the-art equipment to meet the training needs of industry. The remodeling costs were covered as part of Northcentral Technical College's response to the needs of its local industry that was clearly heard during TAACCCT2 discussions. Other partnerships evolved, including an agreement with Miller Electric which supplied new welding equipment and booths at a reduced cost for the Wausau and Phillips campus labs. NTC Welding instructor Veronica Hope noted,

Our community is home to a wide variety of fabrication shops producing diverse products. While the demand for welders persists, so does the demand for employees who can interpret prints, layout parts accurately, and fixture parts effectively. The TAACCCT2 grant allowed us to purchase two Bluco layout tables with tooling. These tables have generated vital changes in our first year fabrication courses. We can now focus on the fundamentals of layout, using equipment that our graduates will experience on the job. Our assessments reflect a more comprehensive curriculum, progressing from measurement and geometric relationships to physical layout and finished product. Our students can tackle more complex layouts with repeatable accuracy.

The TAACCCT2 grant also allowed for the purchase of two complete robotic welding systems. As local industry strives to compete in the global market, the need for automation increases. The additional robotic cells have provided students more hands on time.

Craig Opsahl, NTC Machine Tool instructor, noted,

The TAACCCT2 grant has provided NTC with enhanced abilities to provide CNC programming, CNC operations, and tool and die training for its machine tool students. TAACCCT2 has made the acquisition of two CNC knee mills, one CNC vertical machining center, one CNC horizontal machining center, one CNC lathe, one surface grinder, and three CNC training simulators. These resources improve our machine tool learner experience by eliminating bottlenecks in their training experiences. The TAACCCT2 grant

has also provided better trained machinists to employers in NTC's district, by providing employees with enhanced CNC machining skills.

The TAACCCT2 grant has also provided NTC with resources to provide its machine tool students with advance Computer Numeric Control (CNC) skills which are the standard CNC programming and CNC machine tool operations training. The Haas EC300 horizontal machining center, which was a directive by NTC's Machine Tool Advisory Board to obtain, has two pallets (work stations) which allow NTC machine tool students to experience a realistic work experience of setup, unloading, and loading of parts on one pallet while parts are being machined on the other. The EC300 also provides a platform for NTC's machine tool students to learn four axis CNC milling machine programming and operations with its programmable rotational positioning axis around its Y axis (B-axis). This type of CNC programming requires NTC machine tool students to demonstrate their knowledge and skill in using multiple work offsets and tool offsets (G50s), and also the use of CNC sub-programs (a main CNC program calling up another CNC program after a positioning move in the B-axis).

Craig Lange, President of Lange Machine & Tool Company, LLC and NTC alum, noted,

The TAACCCT2 grant has helped NTC obtain the equipment needed to benefit Lange Machine. The Haas EC300 is great for the students to learn on as all of the large machines we have are horizontal in nature. Horizontal machines are more complex in nature as more axes are available to the user. Multisided parts are the horizontal's niche. This has helped us tremendously in new hires as we have far less training to do. It also has improved our relationship with NTC as they have shown a willingness to work with the industry. NTC has used this grant wisely to procure equipment that local industries use: Kent Surface grinder, CNC knee mills, tool cart, Haas VF1, Haas EC300, Haas SL10, and Haas simulators. The equipment and training provided to students will last long into the future well after the end of the TAACCCT2 grant. The students are meeting the training needs of the industry and are hired right after graduation. Some issues existed where students were being hired and left the college before graduation, but through discussions with the advisory committees for these programs, this practice has subsided as all industry representatives see the value of the graduation for all of their future employees.

A verbal agreement resulted amongst the companies hiring the graduates to not pilfer students away from their education and the Central Wisconsin Metal Manufacturer's Alliance (CWIMMA) was set up to help local companies work together to help reach the goals of each individual company.

Students have expressed great satisfaction with the labs, curriculum, instructors, and partnerships with employers who regularly have contact with them. *Making the Future* was the impetus for a Wisconsin Technical College System (WTCS) General Purpose Revenue (GPR) grant that allowed NTC to partner with Nicolet Area Technical College (NATC) and Mid-State Technical College (MSTC) to align curriculum in welding offerings so graduates from NATC and MSTC's Technical Diploma in Welding program could continue to earn their associate degree in welding at NTC. The grant was titled "Aligning Career Pathways in Manufacturing," or the ACPM grant. The ACPM grant united the three colleges similarly to the CWIMMA organization to allow the greater group to help individuals find success. Drew Painter, an NTC Robotic Welding student, said,

Before beginning my second year here at NTC, I hardly knew about robotic welding or laser cutting. Since I had no exposure to these common manufacturing methods, I was nervous to start the semester. With the help of the friendly staff and instructors, I was able to jump right into the robotic welding and laser cutting. What I like most about the second year Robotic Welding program is the hands-on learning and the highly trained instructors that came right from industry. After completing just the first semester, I felt confident with my acquired skills and knowledge to start working in industry. Although I have to finish this second semester, I will be ready to join the workforce in industry.

The *Making the Future* grant has allowed NTC to expand training offerings from 36 learners in Welding to more than 100 learners and with equipment that is used in industry. NTC students and local industry will reap the benefits provided by the *Making the Future* grant for many years to come. Dr. Lori Weyers, NTC President, recently stated,

Through the *Making the Future* grant, we have had the opportunity to positively impact students while expanding partnerships with local manufacturers, including the Central Wisconsin Metal Manufacturing Alliance (CWIMMA). By working together with our manufacturing partners, we have expanded the pipeline to the machine tool and welding programs to increase enrollments and meet the skilled workforce shortage. The positive impact of the TAACCCT 2 grant for both students and employers positively positioned the college as we continued our work on TAACCCT 3.

The TAACCCT2 grant provided many opportunities for development of the current strategies in Welding and Machine Tool that have carried further into other programs at the college. These developed strategies have proven very useful and will continue in the Technical and Trades programs as well as other areas of the college well into the future.

# Northeast Wisconsin Technical College (NWTC)

## TAACCCT Grant Impact

### Executive Summary

Due to continuous growing demand for Machinists in Northeast Wisconsin and NWTC's limited ability to meet this need, the College leveraged DOL TAACCCT Round 2 funds to successfully build program capacity and improve the learner experience. From the beginning of the TAACCCT grant, NWTC set out to accomplish three major goals:

1. Redesign/reconfigure how Machine Tool/CNC curriculum is delivered using Training Within Industry (TWI) methods to create a high velocity learning flow in which students are put into smaller cohorts and move faster through competencies.
2. Participate in larger consortium-wide components (e.g., Credit for Prior Learning, STEM, and roadmaps).
3. Increase program capacity with space and instructor limitations using workplace organization and standardization.

The combined Machine Tool Operation and CNC Technician program graduates increased from 75 students per year with wait lists to 129 graduates with no wait lists by 2014. This three-year accomplishment regularly takes industry five-ten years to accomplish but was made possible through chunked curriculum, new teaching methodologies, and proper resource allocation. In addition, 312 students have been served and improved organization and standardization have reduced wasted time for each student by 15-20 hours per semester.

### Small Credit Class Breakdown

The TAACCCT Grant funded the breakdown of several classes into smaller credit pieces. NWTC now has semester starting points in September, January, and May, enabling Machine Tool Operation students to complete in as little as seven months. Other benefits include:

1. Easier to accept Credit for Prior Learning (CPL)
2. Easier for students to retake classes if they were not successful the first time
3. Easier to market to Corporate Training as businesses rarely want to pay to send employees to large credit classes
4. Alignment to National Institute for Metalworking Skills (NIMS) standards

Based on an analysis utilizing Lean principles, the modifications to the Machine Tool/CNC programs moved delivery from a traditional structure, which is a slow moving model that requires students to enter at specific points, to a high velocity learning flow in which students are batched into smaller cohorts that move quickly through the competencies.

### Training and Teaching Using TWI

Training Within Industry (TWI) is a teaching methodology, developed to train unskilled but capable people how to do a trade, that breaks subject matter into small segments that can be easily learned and remembered. All of the Machine Tool / CNC instructors were trained in TWI-Job Instruction in 2014.

Jerry Rowland, a Machine Tool instructor, states that “It’s easier for students to learn...by breaking it down it increases the amount and speed that the students are retaining information from demonstrations.” Once this method of teaching began to be implemented, additional training was given to six additional faculty and staff to become certified trainers. These people are now the leaders in the full implementation of creating Job Breakdowns and teaching using TWI.

In 2015, a Wisconsin Technical College System grant continued the implementation of TWI teaching in Machine Tool through the development of additional job breakdowns. NWTC Instructor Don Hill stated, “Since I have started using the TWI method, my students have been making better progress on their projects than in previous semesters. . . This goes for all of my classes overall with students of varying backgrounds. I still have “faster” and “slower” students, but the classes, on average, are ahead of schedule by almost 2 weeks.” Instructor Jim Berceau stated, “TWI’s strength is breaking processes into small parts that the student can quickly learn and practice. I have found that I don’t need to repeat myself as often when teaching and helping students. TWI is ideal for introducing new concepts for hands-on skill building.”

### **Leveraged Resources**

A capital plan was written to complement the TAACCCT grant and was approved by the college. Under TAACCCT funding, NWTC remodeled 6,500 square feet of shop space, added 2,500 square feet to meet program demand, and modified the shop layouts according to a cellular manufacturing model to better accommodate TWI. New equipment includes six knee mills, one drill press, seven pedestal grinders, three belt sanders, a Hass VF2 vertical mill, and a Hyundai 4-axis horizontal mill funded through the college and two mini-mills, seven manual lathes, and two surface grinders funded through TAACCCT. These improvements have turned the machine shops into an inviting atmosphere for students that very closely resembles many local machine shops. Students no longer have to wait for computers, and machine wait times have been greatly reduced.

### **Shop Organization and Standardization**

Through the use of Lean Manufacturing and 5S (Sort, Straighten, Shine, Standardize, Sustain), NWTC tooling requirements were determined, the tools were organized and made visible, and the students were taught to maintain this organization. Ray Clark, a CNC Technician student, commented that “Being more organized gives us more shop time to be hands-on and ask questions with more one-on-one time with the instructors.” Local industry partners have also provided positive feedback: KS Kolbenschmidt, a local piston manufacturer, commented on “how it only makes sense to train the students on 5S, point-of-use storage, and housekeeping as that is what they will be expected to do as part of their jobs.” All of the projects done by the students were also standardized to ensure that each student was completing each project and being taught it the same way. This ensures that all competencies are being met and each student gets the same experience. These standardized projects then allowed the College to standardize raw materials and create a Kanban (card system) to establish maximum and minimum inventory quantities as well as reorder quantities for each stock item. Sam Gustafson, a CNC Technician student stated that “Everything being put where it is supposed to go with color coding and shadow-boards makes things easier to get to with less time wasted.” These 5S and raw material standards have reduced wasted time for each student by an estimated 15-20 hours per semester.

## **Conclusion**

Chunked curriculum, new teaching methodologies, leveraged resources, and improved organization and standardization have saved students time and increased the student capacity of the Machine Tool/CNC programs. Local industry leaders such as Paper Converting Machine Company (PCMC), Robinson Metal Fabrication, KS Kolbenschmidt, Wieber Machine, EMT, and Fox Valley Metal-Tech, Inc. have commended these improvement efforts and have continually hired NWTC graduates. From 2014 to 2015, 100% of NWTC machining students were employed within six months of graduation and nearly 93% of them were employed in the machining trade with an annual salary average between \$34,317 and \$38,019. The current goal is to consistently reach the shop capacity of 252 full-time students in order to continue to meet employer demand.

# Southwest Wisconsin Technical College (SWTC)

## TAACCCT Grant Impact

### Overview of Project

Southwest Tech began work on the TAACCCT #2 grant in October, 2012, as part of the state consortium. The college had three main priorities with the grant:

1. Develop a local certificate to meet the needs of local employers for entry-level manufacturing employees. (Gold Collar Certification)
2. Change the welding curriculum to one-credit, competency-based courses.
3. Develop credit for prior learning standards for manufacturing programs.

Southwest Tech set out to implement the \$430,000 grant over three-and-a-half years. The Gold Collar Certification instructor was on board from the beginning of the grant. In June 2013 a grant coordinator was hired to help with the implementation and begin work on credit for prior learning. In July 2013 a curriculum consultant was hired to assist with the curriculum redesign of the welding program.

### Gold Collar Certification

Southwest Tech developed a non-credit, entry-level manufacturing training program coined the Gold Collar Certification. The program was developed from a request from employers in the area, specifically, Prairie du Chien. The employers were in need of entry-level employees for assemblers, fabricators, warehouse associates, and machine operator. They were not seeing the skills needed in the applicants for the open positions. From the discussions with employers, the program provided participants an introduction to the basics of manufacturing using the National Alliance of Manufacturing's industry-recognized certificate, Manufacturing Skills Standard Certificate (MSSC). The course also includes a focus on LEAN manufacturing and job readiness skills.

The Gold Collar Certification instructor met with employers on a regular basis to discuss the progress of the students and any changes needed to the curriculum. As a result, change management was added to the curriculum.

Employer engagement has been the biggest impact of this program. Some employers (3M) are including Gold Collar Certification on the application and are giving preferred hiring to completers. They have also assisted with marketing, recruiting, the curriculum, and providing field trip opportunities to students, in addition to hiring graduates. Of the students who completed at least 1 of the 5 certificates, approximately 68% full-time employment. Of the students who completed the full program, 80% gained full-time employment. (Statics based on employer and student feedback.) Here are some reactions of employers who have been involved in the program:

"The Gold Collar Certification is a great stepping stone for workers seeking employment with us. It will give them that extra set of skills we look for in our entry-level employees." Tony Schwab, Vice President, Dillman Equipment

"Gold Collar Certification gives people in our community an opportunity to invest in their future and ours." Lisa Esser, Plant Manager, Miniature Precision Components

Because of the employer involvement and it is a locally developed, unique program, the program has gained recognition as a great way to improve the employment situations of the under- and unemployed. Wisconsin Governor, Scott Walker, stated, "This is an exciting program that actively addresses the skills gap, and it's a great model that should be emulated throughout Wisconsin."

Students involved in this program come from a wide variety of backgrounds. They ranged in age from 19 – 72 with the average age being 42. They were also almost evenly divided between men (51%) and women (49%). The manufacturing sector is heavily dominated by younger men. This makes the demographics of the Gold Collar Certification program unique.

As the program continued, the number of Gold Collar participants decreased. This was because there were less adults unemployed or underemployed. Employers still found the need for entry-level employees and started to talk about looking at high school seniors. As a result, Gold Collar Certification will be sustained after the completion of the grant. It will be called Gold Collar 2.0. Much of the curriculum will remain the same; however, MSSC certification will not be included to make the program more economically feasible going forward. The concepts of MSSC will still be included but the certification and testing will not. All other aspects of the program will be maintained.

### **Community Impact of Gold Collar**

The communities of Prairie du Chien and Richland Center were very supportive of Gold Collar Certification. Shortly after the program began SWTC staff attended community events, chamber of commerce meetings, city council meetings, and volunteer organizations to build support and share the opportunities the program had to offer. This communication led to these organizations referring potential students to the program. Some of the organizations referring participants were WIOA, Southwest Wisconsin Workforce Development Board, Crawford County Economic Development Agency, Crawford County Veterans Administration, Department of Vocational Rehabilitation, W2, FSET, Aging and Disability Resource Center, homeless shelters, Passages (shelter for victims of domestic violence), Job Center of Wisconsin, Second Harvest Food Bank, church groups, and many others.

Developing a broad base of community support was one of the keys to success for the program. Gold Collar Certification became the "go to" job training program for these communities.

### **Welding**

#### ***Curriculum Project***

Prior to the grant, the welding courses within the welding program were taught in four, 5-credit courses. While this worked well for the students and teachers, it did not allow for students to earn any credit for prior learning. Possessing all the competencies required in a five-credit course is difficult, even for the most experienced students.

As part of the grant, a team set out to redesign the welding curriculum to be one-credit courses designed around common competencies. The team consisted of two welding instructors, a curriculum

consultant, and the grant coordinator. The group took the competencies from the four welding courses and regrouped them into one-credit courses with common competencies. The new courses were named to reflect the content of the course. The revised curriculum was implemented for the fall semester, 2014.

<b>Old Course Titles</b>	<b># of Credits (22 credits)</b>	<b>New Course Titles</b>	<b># of Credits (24 Credits)</b>
Safety	2	Equipment Safety	1
Welding 1	5	Oxyfuel Gas Cutting & Gouging	1
Welding 2	5	Arc Cutting & Gouging	1
Welding 3	5	Plasma Cutting & Gouging	1
Welding 4	5	Oxyfuel Equipment	1
		Oxyfuel Brazing & Welding-Carbon Steel	1
		Oxyfuel Brazing & Welding-Stainless Steel	1
		SMAW-Equipment	1
		SMAW-Carbon Steel	1
		SMAW-Stainless Steel	1
		GTAW-Equipment	1
		GTAW-Carbon Steel	1
		GTAW-Aluminum	1
		GTAW-Stainless Steel	1
		GMAW-Equipment	1
		GMAW-Carbon Steel (S Process)	1
		GMAW-Aluminum	1
		GMAW-Stainless Steel	1
		GMAW-Carbon Steel (Spray Transfer)	1
		FCAW-Equipment	1
		FCAW-Carbon Steel (Gas Shielded)	1
		Forming & Folding Metal	1
		Fabricating	1
		Fabrication Planning & Drawing	1

### **Curriculum Project Impact**

The implementation of the one-credit curriculum has aided the enrollment of adult students into the program. Transfer credits are more easily accepted because the transferring courses can easily be matched to the competencies of a one-credit course instead of a five-credit course. In addition, students with prior experience can more easily test out of courses. It is much easier to demonstrate the competencies of a one-credit course as opposed to a five-credit course.

The new curriculum also allows for more flexibility in delivering the curriculum. Courses can be easily arranged to meet the needs of the students, potential employers, instructors, and lab/classroom needs. In particular, there was a student this last year who was able to do an independent study. His employer

needed him to have certain skills but he didn't need the full degree. The advisor and the instructor worked closely with the student to determine an independent plan that would meet his needs. This would not have been possible, or at least much more difficult, under the old curriculum.

With the changes in the course names, the names are more descriptive on the students' transcripts. Potential employers can more easily understand the course of study in which the student took part. The previous course titles of Welding 1, 2, 3, and 4 did not describe the skills the student would be learning.

The one-credit format also helped area businesses that were looking to offer training to their staff. When employers contact the Business and Industry training area, it is now very easy to offer the one-credit courses as individual training options. One company has taken advantage of this opportunity and others are expected to follow suit. This is an area that will continue to be pursued as it serves as a potential recruitment tool for the college. If a student is taking the same one-credit course at their business, they will have some credit for prior learning if they choose to attend the college in the future.

With the success of this format, other programs at the college are considering similar formats. The CNC program is currently being convert from a one semester program to a one year program using the one-credit courses.

***Welding Equipment***

Through the grant, the college was able to purchase some additional equipment to bring the Welding lab more up to date. The equipment totaled \$146,000, a significant portion of the grant. While not originally part of the grant proposal, a budget modification was done to be able to make these purchases. The next page provides a list of equipment purchased.

<b>Description</b>	<b>Federal Participation</b>
Federal: Standard Timing Model Test Device	100% Federally Funded
Tensile Tester (w/ bench)	100% Federally Funded
Hydraulic Sheer	100% Federally Funded
Equipment Rental to move Hydraulic Sheer	100% Federally Funded
1600LB Powerlift Rare Earth Magnet	100% Federally Funded
25T Coupon Bending & Tensile Testing Machine	21.259% Federally Funded
Metal Transport Cart – Quantity 11	100% Federally Funded
1000LB Light Duty Jib Crane	100% Federally Funded

***Welding Equipment Impact***

The biggest impact of this equipment purchase is in the category of student safety. The new sheer is much safer than the previous sheer with built-in features that force the students to keep hands away

from the cutting surface. In addition, the sheer has become a time saver for the welding instructors as it takes less time to prepare class materials for the students, resulting in more lab time.

A welding student, Mitch Quade, recently shared his experience with the sheer. *“Have(ing) quality sheers for cutting uniform coupons is critical. When learning to weld there are many variables that impact the weld. One of them is the coupons that we use for practice welds. Having uniformly cut clean coupons is a plus.”*

Once the sheer was installed, the college came to realize much of the supporting equipment needed to be upgraded as well. The college was able to add metal transport carts and a new crane. With these new items in place, the Welding area is now able to accept larger and thicker materials from employers as donations. This has increased employer involvement in the program and helped the students have a better all-around experience.

The tensile tester was also purchased through grant funds. This tester has helped students evaluate their products more effectively and learn from their mistakes. As one student, Mitch Quade, observed, *“To be a successful welder our welds must be tested to ensure they meet good weld criteria. A weld can look good, but when bend tested, will fail. Through testing and analysis of the failed test with our instructor we are able to see where improvements need to be applied to improve the weld.”*

With the increase in the amount of supplies, the increase in donations from employers, and improvements in equipment, the college was able to add a third section of Welding. There were several benefits to doing this. For the first time in many years, the wait list for welding was eliminated. Southwest Tech went from a capacity of 40 students a year to a capacity of 60 students. The third section starts in January of each year. Because they attend classes through the summer, it is an accelerated program. Graduates are done in September which helps employers by having new welders at a different time of the year. In addition, several employers in the area are in agricultural equipment manufacturing. The busy season for them is during the winter. With most of the welders graduating in May, they had found other work before the peak hiring season had started. With these students graduating in September, they are more available for peak hiring.

### **Credit for Prior Learning (CPL)**

Before the start of the grant, the college had disparate and undefined procedures for credit for prior learning. These procedures were not implemented consistently across the college. SWTC used the TAACCCT grant to actively dig into and create a more standardized and robust credit for prior learning process. The college knew that there was a need to look at the adult population as a way to increase enrollment and one of the key ways to do that was through credit for prior learning.

Through the grant, the college reviewed current practices and procedures and identified what could be offered. There were four main categories identified: Transfer credits, Military, Testing and Experiential. The college participated in the CAEL trainings on process mapping and developed a process map for each type of CPL. This process was extremely helpful to the college as it identified who needed to be in the discussions about CPL. Once those were firmly in place, the college moved on to developing written procedures. By going through this process, the college feels the procedures developed are much

stronger than they would have been otherwise and there is greater consistency of CPL across the college.

Southwest Tech has added new options for CPL through the grant. Testing out of a course has been an option at the college for a number of years. However, through the grant, the college was able to add standardize testing such as CLEP as another option for students. So far, six students have taken a CLEP test.

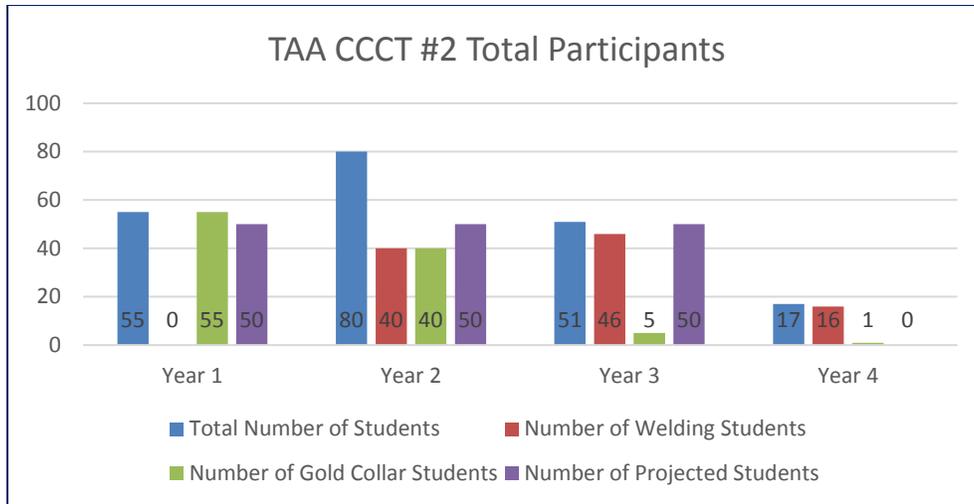
Challenge exams (formerly known as “test outs”) are being standardized through the testing center. This will help with consistency across the campus. As a result, eight students have completed challenge exams. The Credit for Prior Learning Coordinator is working with faculty to develop challenge exams for as many courses as possible. Currently, a new test is being developed for Electro-Mechanical Technology students that will enable students to complete one test that will assess abilities in eight core Electro-Mechanical Technology courses. Depending on which questions the student answers correctly will determine for which courses the student would get credit. There is the potential for a student to take the test and receive credit for eight different courses or twenty-two credits. This test is currently being developed and will be implemented by July 1, 2016.

Southwest Tech has also been identified as an experimental school through the Department of Education. This designation allows students to use financial aid funds to pay for prior learning assessments.

### ***Credit for Prior Learning Impact***

Defining and standardizing the credit for prior learning process has increased understanding of and support for this process within the college. Although the college has not seen a significant increase in CPL since beginning the process, it is confident that once this option is marketed, students will be positively impacted by this process. With the implementation of the procedures, students are now able to receive credits through CLEP tests and portfolios. These options were not available before the grant. In addition, the college has seen an increase in the number of students receiving credits from challenge exams. Once options for credit for prior learning have been established for all courses, marketing of the program will begin in earnest.

### **Conclusion**



The three main areas of the TAACCCT grant had a significant impact on Southwest Tech, the employers, students, and the community. Each one was equally important to the college.

Gold Collar Certification addressed a specific need of employers to provide the entry-level employees they needed. It will continue on as Gold Collar 2.0 with the mission for providing a more qualified employee.

At the start of the grant, the goal was to modularize the Welding curriculum into one-credit courses. As the project continued, the college realized the efforts in Welding would be enhanced with the new equipment purchased under the grant. The improvements to the labs and the changes in the amount of steel that can be handled with the equipment have allowed the program to add a third section. This reduced the wait list and helps fulfill the needs of employers for qualified Welders.

The TAACCCT grant has allowed Southwest Tech to focus efforts on credit for prior learning. Because of the training and support of the grant, the college has developed procedures to help returning adults to earn credit for past experiences. Moving forward, the college will continue to promote credit for prior learning to help adults return to school.

The college feels the work done on the grant will be sustained past the grant and will continue to have a significant impact.

# Waukesha County Technical College (WCTC)

## TAACCCT Grant Narrative

The impact of the TAACCCT 2 grant at Waukesha County Technical College (WCTC) can be seen in a number of areas:

- Expansion within the Machine Tool and Welding programs
- Embedded credentials that can be earned in one year or less
- Academic support that spans beyond the classroom
- A streamlined and consistent approach to credit for prior learning
- Additional welding equipment

### **Expansion**

The initial vision by WCTC for the TAACCCT grant was to expand the number of sections of first-year classes offered in Machine Tool Operation (MTO) and Welding to meet a strong demand and eliminate waiting lists for enrollment. Beginning with the spring 2013 semester, WCTC opened up a new section of 18 more seats in every MTO and Welding course that would normally be offered in that semester. In addition to following that same format, WCTC also began to offer some fall courses in the spring term, giving new students another point of entry into the program. WCTC also expanded the number and type of courses offered in the summer. As a result of the TAACCCT grant, WCTC opened up more than 1,000 new seats over the course of this grant funding. Even though WCTC's TAACCCT grant funding is fully spent, the college is still maintaining the same number of course sections. Demand for both programs remains strong, and the college continues to add additional courses where possible.

### **Embedded credentials**

WCTC added two embedded technical diplomas as part of the TAACCCT grant. The college added the one-year Welding Technician (30-457-1) and CNC Technician (30-420-4) programs. These programs focus on occupational courses and are designed to prepare students for entry-level employment. Both credentials ladder into other approved credentials in their respective programs.

The Welding Technician program prepares students for jobs such as welders, cutters, solderers, and brazers. Credits earned in the 18-credit Welding Technician program can be applied to the 30-credit Metal Fabrication/Welding program and the two-year Metal Fabrication/Welding Advanced associate degree program.

The CNC Technician program prepares students for jobs such as CNC setup technician, CNC programmer, and CNC operator. For those interested in continuing their education at WCTC, courses within the CNC Setup 19-credit technical diploma can be applied to the 35-credit Machine Tool Operation technical diploma and the 67-credit Tool and Die Technical diploma.

Since their inception, enrollment in these one-year programs has increased steadily. Here are the number of new students who registered for these embedded technical diplomas. Please note that WCTC only recently started allowing spring semester starts for Welding.

<b>Program</b>	<b>Spring 2015</b>	<b>Fall 2015</b>	<b>Spring 2016</b>
Welding Technician	2	36	26
CNC Setup Technician	0	4	20

Overall, we currently have 45 students enrolled in the CNC Technician technical diploma and 84 in the Welding Technician program. As for graduates, we've had 16 in CNC Technician and 47 in Welding Technician since these credentials were first offered.

Employers are thrilled to have additional graduates in these high-demand occupations. Employers like Bruno Independent Living Aids hire WCTC graduates each semester. The growth of these programs has dovetailed with growth in the regional manufacturing sector, thus providing well-trained employees at a time when employers are seeking to hire.

### **Academic Support**

The TAACCCT grant funded a 32-hour per week academic support instructor starting in fall of 2014. WCTC re-allocated funds from the career development and career services areas since the college was continuously underspending there. The person hired for the role has practical work experience and a background in the STEM related disciplines. She was already working at the college under another grant, however that funding was only for four hours per week. Thus, the TAACCCT grant enabled the college to expand the position and move it from part-time to part-time II, which is a 32-hour per week role with benefit. The academic support instructor's holistic approach to academic support includes teaching students:

- how their brain processes information
- how to work more effectively and efficiently
- study techniques that complement the way our brains process and link ideas
- a variety of tips and tricks for deep focusing and pacing themselves to allow the brain time for diffuse processing and linking ideas
- how to dissect the information and how to illustrate concepts and processes using sketches, mind maps, and charts
- how to break down what seems to be an insurmountable amount of homework into smaller steps that become more "doable".

WCTC started out by assigning the academic support instructor to the appropriate TAA-funded sections of several classes: Blueprint Reading I, Blueprint Reading II, and CNC. The academic support instructor was present during the full class periods, and offered extended hours outside of class to assist students. While she did not sit in on any industrial math classes, she did provide support in that subject area since it is so closely linked to Blueprint Reading. The college also invited students from other sections of the specified classes to take advantage of the academic support instructor's office hours. The academic support instructor served 36 students in her first semester.

Students have told the academic support instructor and their other instructors the value of the academic support function. The common comment is, "I wouldn't have made it through without Stacy." Program faculty have shared how they now hear students praising the academic support services among themselves and recommending it to other students!

Each semester, the number of classes that the academic support instructor was involved in expanded. Also, word spread among students and faculty alike, thus increasing the potential pool of students who would benefit from assistance. There are some students who regularly attend the open lab time, while others drop in as needed.

Now that TAACCCT funding has ended, the academic support instructor is visiting all sections of Blueprint Reading and CNC to promote the availability of her assistance. Rather than be assigned to specific classes this semester, she goes into classes by instructor or student request and maintains the open lab hours throughout the day to accommodate both day and evening students. To date, the academic support instructor has served close to 100 students.

The college is committed to maintaining this function within the School of Applied Technologies. WCTC has written this model of academic support into a state grant and has also requested permanent funding for this position. The position request is currently making its way through the college's budget process.

### **Credit for Prior Learning**

WCTC has benefitted significantly from the consortium's work with CAEL as it relates to Prior Learning Assessment (more commonly known as Credit for Prior Learning). During a series of process mapping webinars, WCTC successfully updated and streamlined its approach to CPL. The academic advisor for Manufacturing and the grant project manager attended introductory CAEL training sessions. The academic advisor participated in advanced CAEL training opportunities and is spearheading the college's work in this area.

The manufacturing academic advisor partnered with Welding faculty to pilot the assessment design process that CAEL recommends. An assessment was created for GMAW and Metals Tech, and WCTC is in the process of creating others. Thus far, WCTC has only had one student take advantage of a prior learning assessment. In addition, she worked closely with the Associate Dean of Manufacturing to promote the benefits of CPL and how important it is in attracting and retaining students. Her efforts are resulting in a more consistent and repeatable CPL process.

In addition, the advisor and grant project lead promoted the importance of moving the college's CPL process forward to the Vice President of Learning. Those efforts, coupled with the work of the consortium's lead college, helped prompt the creation of a new Academic Master Plan committee to operationalize CPL across WCTC's campus. The academic advisor for manufacturing is co-chair of this committee, along with the college's Pathways Coordinator. The TAA 2 grant project lead is also a member of that committee.

In just three meetings, the CPL committee has created process guidelines, determined a revised fee structure, identified courses with the most CPL requests, and began to create a work plan for the committee. The committee will continue to meet bi-weekly to keep moving this work forward.

## **Equipment**

With TAACCCT grant dollars, the college purchased 18 TIG welders and a welding simulator. The additional welders were necessary in order for the college to offer more sections of welding classes. The College funded the creation of a second welding lab to house the new welders. The welding simulator has proven to be an excellent teaching and learning tool.

While skeptical at first, faculty have really embraced the benefits of using the welding simulator for demonstrations and student practice. Welding faculty have said that by practicing on the simulator, students are able to hone their welding skills and build muscle memory before working in the welding lab. Faculty say this allows for more customized training, as they can set parameters on the simulator in such a way as to incrementally increase the level of challenge for students. In addition, having students practice on the simulator saves on material and scrap costs, since there is less waste in the lab.

Students have said that using the welding simulator increases their confidence once they get into the lab. They appreciate having an opportunity to practice laying beads down and getting feedback on the attributes of their welds. Once a student completes the weld, the simulator gives feedback (grading in %) of travel speed, travel angle, contact to work distance (CTWD), and steadiness of hands.

## **Conclusion**

In sum, the TAACCCT 2 grant enabled WCTC to expand course offerings in two high-demand manufacturing areas; purchase equipment needed to support the additional course sections; provide expanded academic support to students to strengthen their skills in foundational classes; and help propel the college's prior learning efforts forward. WCTC plans to maintain the academic gains brought about by the TAACCCT grant and to continue to operationalize its credit for prior learning efforts across the entire campus.

# Wisconsin Indianhead Technical College (WITC)

## TAACCCT Grant Narrative

### Overview of Project

As a member of the Wisconsin Technical College System (WTCS) consortium that successfully applied for the TAACCCT 2 *Making the Future: The Wisconsin Strategy* (MTF) grant, Wisconsin Indianhead Technical College (WITC) has been able to create substantial changes and improvements within some of the college's advanced manufacturing programs and processes impacted by this grant funding: specifically, the grant-funded improvements in the development of embedded career pathways in the Welding and Machine Tooling Technics programs, expanded sections of program instruction, support for student success with additional instructional support through a "bridge" instruction format, and purchased "cutting edge" major equipment (robotic welders, five-axis milling machine) for both programs. The grant also provided for a Career Advisement Specialist (CAS), who has served as a liaison to improve relationships and collaboration with the region's Workforce Investment Boards, county Workforce Resource agencies, and the region's advanced manufacturing employers. The CAS has provided support and outreach for the program students seeking internships and employment upon graduation, with the focus on support for TAA-eligible, veteran, and other adult-learner students.

### Impact to Students and Employers

The impact of the MTF grant on both students and employers has been significant. The grant "pushed ahead" a number of initiatives that WITC was considering/working on, but because of the impetus of the grant mandates, came to fruition and positively impacted the college in a number of ways.

### ***Emerging Technologies and Major Equipment***

Grant funding allowed for the purchase of several pieces of major equipment the college would not otherwise have been able to afford. Specifically, the Welding program purchased two robotic welders and the Machine Tooling Technics (MTT) program purchased a five-axis milling machine. Employers have appreciated being able to hire graduates with skills on new technologies in the industry.

- **Robotic welders:** The two welders purchased with the grant funding are shared between the four WITC campuses (Ashland/Superior and New Richmond/Rice Lake). Incorporating this innovative equipment into the Welding program has allowed the Welding program graduates to be competent in using this new technology in the welding field. "Having a knowledgeable workforce skilled in the use of the robotic welders is important to keep pace with change." stated Tom Morrissey of Mississippi Welders Supply, an employer of WITC Welding graduates.
- **Five-axis milling machine:** This new technology in machining provides infinite possibilities as to the parts and sizes of manufactured pieces that can be created. Having students in the MTT program gain skill and competence in utilizing the state-of-the-art piece of equipment enhances their employability skills. "It is vital that WITC grads are well prepared to use the most current machining techniques and equipment," commented Jason Newton of Bosch-Doboy, which hires many WITC MTT graduates.

### ***Career Pathway Options***

Both programs quickly moved to create embedded credentials. The Welding program created five embedded credentials and the MTT program created two. Both sets of program credentials have provided opportunities for students at multiple levels. The embedded Welding credentials have allowed students, who would have otherwise had to drop out due to time constraints, the opportunity to earn at least several of the embedded credentials. Two of the embedded Welding credentials (Shielded Metal Arc Welding and Gas Metal Arc Welding) have been offered in a dual enrollment high school academy during the FY16 academic year. Of the 14 students in this program, 12 have enrolled into the full Welding program for fall 2016. The MTT embedded credentials have also allowed several students the option to complete an embedded credential when they no longer had the time to commit two years to the full program. One student is combining the Welding degree and the embedded credential (one-year) of the MTT program to take advantage of the “double” skill set in only two years of education. “Completing two programs in two years is an efficient use of my time,” said Brian Steffen, a WITC New Richmond campus student.

Employers appreciate the availability of the embedded credentials. Dan Bushman of Northern Metal Fab, Inc. commented, “As the single most recruited tech job, having the embedded welding certificates is invaluable to both our intern program and our ongoing full-time position recruiting.” The embedded certificate options allow for part-time workers to continue their education to become skilled in welding or machining. The embedded credentials also provide the opportunity for an employer to contract for training of specific skills for their employees, which would also “count” toward the full program degree.

### **College and Community**

The MTF grant has greatly enhanced collaboration between multiple factions throughout the college and the community. The Workforce Investment Board (WIB) liaison role, known as a Career Advisement Specialist (CAS), has allowed WITC to have a specific position charged with improving relationships and outreach to the Workforce Resource (including TAA-eligible workers), veterans, and manufacturing employers throughout the district. While there have been “pockets” of collaborative initiatives, having an employee charged specifically to improve the communication flow and collaboration between these groups is a new role at WITC. It has had very positive results.

### ***Veterans***

Direct veteran outreach has not been assigned to any specific WITC employee in the past. Beyond a process to certify veteran status and possible credit for prior learning (CPL) of military experience through the Registrar’s Office, there have not been other initiatives between WITC and veteran agencies. Via MTF grant funding, the CAS has made purposeful, direct contact with the county veteran boards throughout the district and offered to meet with individual veterans to provide information regarding programming at WITC. This advisement has also helped facilitate WITC’s CPL processes to recognize their military experience. The CAS worked with Student Services to help host summer open houses that included direct marketing to veterans. This resulted in a 62 percent “conversion rate” of veterans who came to the event and then went on to enroll at WITC. Veteran agencies have contacted

the CAS to meet with veteran groups. Veterans, on campus, have sought out the CAS for assistance for college enrollment processes. In February 2016, a veteran-student services administrator (from another WTCS college) spoke at a college-wide in-service with the intent of helping college staff recognize the unique needs of veteran students. According to Scott Lieburn, who is both a veteran and a college administrator who works with veterans, “Veteran students have a specific set of needs that can be quite different from non-veteran students. Colleges must reach out to veterans in different ways from the usual student recruitment processes.” Without the CAS reaching out and being mindful of the particular needs of the veteran as it relates to attending college, none of these connections and opportunities would have been possible.

### ***Workforce Resource and Workforce Investment Boards***

Again, the CAS has been directly responsible for reaching out and collaborating with the Department of Workforce Development agencies throughout the WITC district. WITC lies in two Workforce Investment Board districts, so is compounded by multiple agencies and several leadership teams. The CAS has substantially improved these relationships. Now, each WITC campus hosts a Workforce Resource staff on a weekly basis to provide services to students. The college has collaborated on several grant applications and initiatives secondary to the improved relationships. All parties are recognizing the power of these partnerships and plan to continue these joint efforts. According to Deb Leslie, Chief Executive Officer of West Central Wisconsin Workforce Resource, Inc., “Thanks to the partnership between Workforce Resource and WITC we have responded to industry demands for skilled employees by creating career pathways to middle- and high-skilled jobs. Our collaboration is focused on a demand-driven model that develops and grows the pipeline of talent to meet the labor needs of employers today and into the future.”

### ***Manufacturing Employers***

Again, there had been “pockets” of manufacturing employers who have been involved at the college, but through the outreach of the CAS, a significant improvement in communication and collaboration has resulted. The CAS has been a consistent member of county economic development committees and brought an energy of “getting things done” that did not always happen in the past, because there was no one person designated to improve these relationships. One county has even reached the level of wanting to host a Sector Partnership (St. Croix County, WI) and continues to move in this new, more responsive direction.

### **College-to-College Initiatives, including Credit for Prior Learning**

The CPL opportunities made available through the MTF funding has had a significant impact at WITC. The funding has provided not only national-level staff development opportunities (CAEL), but, probably more importantly, the opportunity to work collaboratively with WTCS counterparts to share best practices and lessons learned. CPL has had “pockets” of utilization, but until the MTF grant funding provided the opportunity, WITC did not have the CPL process as a priority. Now, significant improvements have been made. Over the course of the grant, 44 students (34 in Welding, 10 in MTT) have earned CPL in WITC’s Welding and Machine Tooling Technics programs. While there is no change in the number of students earning program CPL since the inception of the grant (FY14 = 15 students, FY15

= 15 students, FY16 = 14 students), it is believed that with the improved communication and flow of the CPL processes, these numbers will grow.

The improvements in WITC's CPL processes have been facilitated through:

- Statewide collaborations on CPL processes have provided new ideas and shared strategies to prevent having to “reinvent the wheel” for various CPL processes. The intake processes and shared assessments that have been part of statewide WTCS meetings, secondary to the grant, have been a tremendous help to WITC. An evaluation of WITC's current processes and how to improve them has been a result of the grant-funded efforts. Now an “official” process for potential student to seek out CPL has been established and implemented. This would not have happened within the timeframe that it did, without the support of the grant funding.
- Improved communication of CPL processes has also resulted via the grant funding. A significantly improved website to guide potential students through the WITC process will be released in May 2016. This improvement is viewed as a conduit to potential students to recognize how CPL could be possible for them at WITC. Again, this would not have happened without the support of the grant.
- Improved processes for CPL of military experience has also substantially improved via the grant funding. Outreach to veterans seeking information regarding recognition of the military experiences is now possible via the MTF grant.

### **Key Learning**

The funding has provided WITC with opportunities it would not otherwise had. It has significantly impacted a variety of aspects of the college and WITC has learned some valuable lessons. For example:

#### ***Embedded credentials enhance a program***

Initially there was significant resistance among both faculty and program deans to create and implement embedded career pathways within programs. While the college was moving toward the process, there was enough consternation among faculty and program deans that the process was not moving very rapidly. Now, after the grant mandated this process, WITC faculty and program deans have seen how powerful and useful this “chunking” of the curriculum can be. In the past, the philosophy was that students must commit to the entire program in order to be competent. Now college faculty and staff recognize that earning credentials, returning to work, and eventually returning to school to complete their degree, may be the best option for many WITC students. Now students can “chunk” their program to fit their individual need. Faculty and deans also worried about how they would schedule programming with students only partially completing the program, then wanting to return. “We were concerned how we would manage students entering and exiting the programs,” said Karen Hoglund, the WITC Welding program dean. But, to date, this has not been a problem; rather, it has allowed for full sections because returning students fill spaces of students who leave after completing the embedded credential. Things have seemed to, overall, balance out quite well, despite widespread concern about how the process could be successful.

#### ***Bridge instruction is needed but difficult to implement***

With the support of grant funding, WITC was able to try out a number of configurations of “bridge instruction.” The funding allowed both Adult Basic Education (ABE) instruction to support student learning, as well as program instructors spending extra time with students to enhance learning via a tutoring model. Instructional support was difficult to schedule outside of class, and mandating students to attend has been complicated. Requiring students to come to campus beyond their program schedule created barriers for students. While both instructional formats helped students be academically successful, the scheduling of the bridge instruction created a significant challenge.

With the grant funding, WITC was able to “try out” several configurations. In the end, what was found to be most helpful for students was to have the ABE instruction to be offered via a team teaching approach with the program instructor. During known areas of student struggle with the curriculum, the ABE instructor worked directly with in-class students to utilize study skills, and help present concepts from the *learning theory* side, versus the *content expert* side that the program instructor provided. By having the “just-in-time” approach to bridge instructional support, students have been more successful. WITC would not have been able to try out these various configurations without the benefit of the grant funding. Now, it has become a practice of the college for how instructional bridge support is offered.

### ***Veterans are a unique student group***

Prior to the focused work of the CAS to recruit veteran students to WITC, it was not really recognized by the college that many veteran students have unique needs that no other student group possesses. The grant funding provided the opportunity for WITC to work with veteran agencies to better learn what veteran students need to be successful at college. While they, and their family members, may be eligible for veteran benefits, utilization of these benefits can be very complicated and may not have clearly been communicated to the veteran. Veteran students often don’t even *view themselves as veterans*—rather “veterans” are Viet Nam era “old guys”. They may not recognize that serving in any capacity of the armed services can provide some college benefit, but how and where to connect with these resources may be complicated and a challenge they don’t need.

Through this grant, WITC has come to recognize that working with veterans and veteran agencies requires dedication to the relationship. Veterans have had different life experiences and relationships that need different support systems, and not recognizing the unique needs and perspectives veterans may possess will prevent a trusting relationship from being built with veterans as a group and as individuals. While there needs to be continued dedication to nurturing the veteran relationship, significant momentum has come about secondary to the CAS and other Student Services personnel outreach to veteran students and agencies. There is more work to be done, but the grant has provided a solid base from which to grow the college’s relationships with veteran students.

### **Conclusion of the Project**

The MTF grant has had a significant, positive impact at WITC. It has served as a successful model for the college to implement career pathways in both the Welding and Machine Tooling Technics programs. It has provided funding to support additional sections of Welding instruction and supported student success through the infusion of “bridge” instruction into the program. The funding has enhanced the curriculum through the purchase of several new technologies found in the advanced manufacturing work environments. Improved relationships with Workforce Development factions, including TAA-

eligible individuals, veterans, and employers have been a direct result of the CAS role, funded through the grant. Relationships and partnerships have been forged through the improved communication brought forward by the CAS's efforts. Improvements in the college's CPL processes, also fueled by the grant, have provided greater opportunities for students and enhanced WITC's focus on always keeping the student-customer's needs a priority.

WITC, like most colleges, is challenged with fiscal constraints. The college must strike a balance between immediate financial need and investments in the future. The MFT grant has created many successful strategies to best serve students. Sustainable practices directly tied to the successful grant implementation include the additional sections of the Welding program to be continued, continued offering of embedded credentials, and ABE instructional support within the program's instruction. The CAS position has been moved to another grant funding source, and may be moved to operational funds once that funding has ended because of the success of this role. Finally, the improved CPL processes and specific outreach to veterans will be sustained via college operations or future grant funding may be sought to expand these services. The MTF grant has added value and opportunity at WITC. The college is thankful for this opportunity.

# Western Technical College

## TAACCCT Grant Narrative

One of Western Technical College's grant outcomes was to develop a maintenance program which involved a strong pathway concept of three distinct programs: Welding, Machine Tool Operations, and Electronic Systems Installation and Maintenance. During the development of this program a focus was placed on preparing students for the math courses through our Learner Support and Transition division. A brush-up math course was developed with an adult focus of learning activities and time span. Credit for Prior Learning had a presence at Western Technical College in the format of challenge exams prior to the obtainment of the TAACCCT II grant. The grant provided the opportunity to expand the processes, work with faculty, obtain assessment training, and develop a consistent format for assessment of experiential learning.

### **Fast Track for Math – ABE/Bridge Program**

The Fast Track for Math was developed as a brush-up math course for adults entering Applied Math – Welding. The course was developed to be presented in 12 hours; four (4) hours per day for four days during a one week period. This initiative focused on new students becoming more comfortable with math concepts prior to taking the Applied Math course. It became evident after the first offering, this accelerated method was conducive for adult learning and student success.

The course began with basic math skills, then built upon those skills toward the application of math using micrometers, scales, and other tools used in the welding field. Students who participated in the course had 100% success in the Applied Math course. This boosted student confidence as well as learning advanced applied math concepts. Students had commented that if they had the course prior to taking a placement exam, they would have done better on the placement exam. Other student comments included "I was less nervous" about taking the math course and used the "math concepts consistently in the welding courses" especially in Blue Print Reading.

With the information gathered from the first offering, the instructor slightly modified the course. It was offered at three Regional Learning Centers as a pilot brush-up course offered prior to the placement exam. The Regional Learning Centers' faculty noted there was a rise of confidence within the adult students when they took the placement exam. The students verbally indicated they felt more prepared taking the pre-algebra portion of the Compass exam due to the review. The Compass pre-algebra scores are used for supplementing an individualized educational plan.

The second offering of the Fast Track for Math course sponsored by the grant had a direct impact on students entering the college and the community. Four of the students took the course to assist in the application of work-related skills. One student mentioned she applied for a higher-level position as an inspector and thought "this course would increase her skills for that position." This student had her supervisor and mechanical engineers review the workbook which led to her bringing various measurement tools to the class for student learning. Two other students also brought tools from their place of employment to share with the other students. These three students reported they anticipated they would be using the tools at the worksite with more accuracy since they understood the basic

concepts. One student stated, "I now know how to use the micrometer which will help with inspections. My employer was happy to let me bring these (various measurement tools) so I could learn to use them during class."

This accelerated format was discussed with the Learner Support and Transition faculty and associate dean which led to the expansion of the course at the La Crosse campus. Currently, the English adult basic education instructors are exploring the possibility of an accelerated brush-up course for the written and English components that are in the placement exam.

The initial concept of course was geared towards the applied math courses which was within the scope of work for industry related programs. The impact of this course being geared towards the adult learner and providing it solely as a brush-up course, led to scaling it towards preparation for placement exams. Scaling the concept of accelerated learning principles towards additional subject areas will serve the adult population who has been out of school for long periods of time and prepare the student for college-level work or placement in an adult basic education program.

Several colleges within the Wisconsin Technical College System have expressed interest in obtaining the curriculum. The Fast Track for Math curriculum/workbook was shared with Moraine Park Technical College. They may use it at their college as a brush-up course upon review of the material by their math faculty.

### **Career Pathways**

The Manufacturing Systems Maintenance Technician (MSMT) program was developed upon the concept of career pathways. The program has three distinct pathways: welding, machine tool operation, electronic systems installation and maintenance. The concept of students being able to step in and out of the program, while still being able to obtain a diploma in one of these three pathways, was new to the college. Western has numerous one-term internal certificates versus one-term technical diplomas.

The impact of obtaining a one-term technical diploma has been a bonus for students and stakeholders. During a student meeting, it was voiced that the diploma was received via US Postal Service. One student commented, "it was nice to get it in the mail, then I checked to see if it was posted on the transcript, and there it was." The graduate may place the obtainment of the diploma on employment applications and resumes. Community agencies appreciated the fact a client they are assisting would have a technical diploma if they happen to "job out" prior to completing the entire program. Bryan Cottrell, supervisor at Ingersoll-Rand Trane Division, has hired students who have obtained a short-term technical diploma. Recently he hired a student as an intern and stated that "the mix of pathways is perfect for the different positions we have at Trane. He came to Trane with a wealth of knowledge in the different manufacturing principles." Lastly, students had choices without losing credits. Some students chose to remain in the welding program while others decided machine tool operation was their desired career path instead of the MSMT program.

The collaboration between programs and departments was immense. Scheduling the courses with heavy laboratories was a challenge. Discussions of how to coordinate the laboratory hours, course work, and instructors required lengthy discussions between the programs and other departments at the college. This would be one area of the curriculum Western would redesign if we were to develop the program again. Instead of relying on each program to make curricular changes within the pathway, it would map

out the curriculum with the various competencies to determine if there was overlap of the competencies. Developing a curriculum design with a well-defined philosophy would strengthen the program and provide a stronger identification with pathway concept and ease of collaboration between the programs.

Another challenge that the pathway structure encountered was if a program changed the sequence of courses or changed the curriculum without including the MSMT program, the pathway into that specific program was lost. Western learned that the collaboration between programs was essential not only for student success but for the vitality of the programs that the short-term technical diplomas pathway into.

A third challenge was aligning systems to assure that students received the diplomas as well as items for student success such as financial aid, textbooks, schedules, etc.. Communication and collaboration between college departments required Western to develop process maps or flow charts which are still continuing to develop. The flow charts, when completed, will be used by all of the educational divisions to improve communication processes. The development of this program demonstrated some of the internal barriers that were occurring in the college.

A display of the program depicting the pathways was developed by Western's marketing department. A manned display at career fairs, open houses, manufacturing workshops such as Tech Network Night, WMC Foundation for the Advancing Wisconsin Manufacturing and presentations at the La Crosse Job Center demonstrated how the program was developed using the three distinct disciplines. This increased program interest with various stakeholders. One of the key learning aspects was who was responsible to update the material, assure that updated materials were available for the stakeholders, and who is responsible to present the material. One modification to consider would be having one designated individual complete these tasks. This would reduce the replication of work and revisions could be completed in a timely manner. This may improve the distribution of materials to various stakeholders.

### **Credit for Prior Learning**

Credit for prior learning has been present at Western for numerous years as a well-kept secret. Challenge exams were developed and published in the student handbook but rarely did students take advantage of this option. The process of who proctored the exam, how often the exam was updated, who completed the grading of the exam and the location of the exam varied in each division. The impact of the grant in supporting the hiring of an advisor/specialist to develop processes was instrumental at Western Technical College.

These two individuals collaborated with the Assessment Center staff, faculty, associate deans, and deans to develop a consistent process at Western. The impact of having all of the challenge exams administered at the Assessment Center provides the student with a safe, quiet, and standardized proctoring system. Staff at the Welcome Center and the adult learning specialist advise students on the process of a challenge exam that requires less steps than it did in the past.

There has been an extreme amount of collaboration with faculty to establish timelines for grading challenge exams and portfolios. Completing this task in a timely fashion has had a direct benefit for the student. In the past, the student did not know who to contact to find out if he/she passed the exam and if the credits were granted. The adult learning specialist tracks the progression of the grading process,

assures the registrar's office obtains the final documents, and contacts the student. This personal contact with the student has had a higher satisfaction and reduced stress levels. Since this process has been in place, there has been an increase of student interest completing the challenge exams and portfolios due to students talking about it and faculty/staff referrals. Prior to the grant (2012), data on the number of challenges given was not kept, but the registrar's office stated challenge exams numbered between 10-15 exams per academic year. No portfolios or assessment of experiential learning occurred. Since May 2015, 403 students expressed interest in CPL and 208 students had some form of CPL evaluated with a total of 622 credits granted.

Collaboration with the divisions and faculty to develop a repository of exams has led to timely advancement in the distribution of the exams. This has influenced faculty to being more receptive to credit for prior learning because they are not directly responsible for the distribution of the exam. Removing the faculty from the procedural steps and maintaining them as the content experts has improved morale and decreased faculty concerns about the process.

The development of rubrics for portfolios has been initiated. This has enhanced discussions with the student on what the requirements are as well as streamlining what is essential material to be included in the portfolios. This process has had the faculty reviewing the competencies and restructuring outlines or guidelines for the student. This change benefits the student who is completing a portfolio and enhanced the ease of grading the student's knowledge of the subject.

Collaboration with Military Services has improved the process for the review of military transcripts and development of CPL throughout the college. The individuals in the adult learning office and Military Services have different skill sets that complement each other. Ideas, process maps, review of college processes, webinar/training/workshops, and documents are shared between the two departments. This increases the knowledge base and skill set of all individuals who are involved. This tie between the departments has benefited the college, students, and stakeholders by having consistent messages, documents, policies, and procedures. The college policy did not change but procedures were revised through process maps and flowcharts. Since credit for prior learning information has been shared with advisory committees and faculty, there have been over 50 referrals. Dairyland Power currently contacted the Adult Learning Specialist to work with an employee to develop a portfolio and advance his skills through attainment of the Individualized Technical Studies degree.

One step that Western should have taken at the beginning of the grant was to have a charter to guide the process. A committee of faculty, staff, and administration may have assisted in gaining momentum for credit for prior learning and the development of practices. Although Western has achieved significant enhancement in this area, improvement of the system must still occur. At this time it is developing a team to obtain different perspectives on our processes.

In closing, the TAACCCT II grant has afforded Western Technical College to develop, expand, and improve processes in the area of credit for prior learning, pathways, and adult basic education. The impact of the grant to sustain each of these areas and scaling up has been significant within the college and region. The college is advertising and reaching out to employers on how adults/employees may receive credit for experiential learning. The CPL bond with Military Services at the college and the community has been strengthened as demonstrated by the increase of 208 students obtaining 622 credits since May of 2015. The Fast Track for Math is being expanded into different sectors such as reading and writing. Lastly, the college is utilizing the 10 Components of a Successful Career Pathway with all of its

programs. This will help guide the implementation plan for specific programs while coordinating with college/student services across campus. All of the work completed with credit for prior learning and pathways is being continued in TAACCCT Rounds three and four grants.

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