

EDUCATION AND TRAINING COLLABORATIVE GRANT PROPOSAL

Proposal Summary

The Northwest Private Industry Council, the Northwest Service Cooperative Adult Basic Education consortium, the WorkForce Centers in Thief River Falls and Crookston, and the Northland Community and Technical College campuses in Thief River Falls and East Grant Forks, commit to working together to develop and provide on-site pre-certification Technical Math Skills training directly linked to NCTC's Production Welding certificate program.

the goal of this pre-certification class is to address the math deficiencies of the students, either prior to or concurrent with their entrance into the Production Welding program, in an effort to teach them the math skills required to be successful in that program. This class would directly linked to NCTC's Production Welding certificate program: the first step on a career pathway to completion of a Welding Process Technology diploma, thereby ultimately creating a better prepared, more skilled, and more marketable welding workforce for area employers and manufacturers.

Our objective is to develop curriculum and provide pre-certification Technical Math Skills training for adults who are considering welding as a career goal, as well as those who are entering or currently enrolled in NCTC's Production Welding certificate program. The curriculum would address foundational math skills, including: reading and understanding fractions, mathematical manipulation of fractions and decimals, using measuring tools such as a tape measure, understanding the metric system and performing standard-metric/metric-standard conversions.

While class enrollment remains consistently at or near the maximum enrollment of 23 students, NCTC - TRF instructor Joel Ziegler has indicated that many of the students entering these programs lack the skills necessary to adequately meet the rigors of the welding related math curriculum. Mr. Ziegler has indicated that he spends an extensive amount of time at the beginning of each semester ensuring that entry level students possess sufficient math competencies to progress in the curriculum.

According to NCTC, the employment outlook for graduates of the welding program is excellent. Graduates with a certificate in Production Welding can expect to find full-time employment in production work, manufacturing, repair and maintenance, and the construction industry. This sentiment is confirmed by local employers such as Arctic Cat and Central Boiler who have a consistent need for skilled workers. Graduates with a diploma in Welding Process Technology can expect to find employment in a manufacturing production facility as a welder or robotics operator. Welding skills also lend themselves to entrepreneurship as some welders choose to go into business for themselves.

Statement of need and eligible client identification

The seven counties of Kittson, Marshall, Norman, Pennington, Polk, Red Lake and Roseau, located in the northwest corner of Minnesota, comprise Economic Development Region 1. IT encompasses 14,000 square miles (larger than nine states) with a population of approximately 90,000 residents. Due to this region's geographic isolation, access to larger marketing centers

is limited requiring residents to be self reliant and use the resources at their disposal to forge a living.

In January of 2008 there was an unemployment rate of 4.9% in the state of Minnesota, while Northwest Minnesota recorded a 6.3% unemployment rate in December of 2007, due primarily to seasonal dislocations in construction. In November of 2007, the region had an unemployment rate of 4.2%, below that of the state. In the second quarter of 2007, the region had total employment of 37,636 with total wages of \$274,397,866. The manufacturing industry in the region has 22.8% of total employment (8,666) and 29% (\$80,164,457) of total wages were represented by this industry. In contrast, Education and Health Services had higher total employment (9,266) but lower total wages (\$71,907,999).

According to the MN 2007 Skill Gap Survey, Northwest Minnesota manufacturers report the second-highest workforce shortage in the state. One of its most striking findings is that only 32% of respondents from Northwest Minnesota indicated they had collaborated with the education system to deal with their workforce issues. Our proposal provides just this opportunity.

Several efforts are underway to address this problem but they lack coordination and alignment. Historically, there has been limited partnership between Adult Basic Education, the public workforce investment system and higher education within the region. This proposal will address this gap while enhancing the educational opportunities and employment outcomes of low income adult learners in Northwest Minnesota.

The challenge posed by the area's acute workforce shortage cannot be underestimated. Area manufacturers and employers have worked closely with NCTC's Center for Outreach and Innovation to develop needed curriculum and prepare qualified welders to fill job openings in both maintenance and new fabrication. Companies, such as Arctic Cat, are going to extraordinary lengths to recruit and retrain workers in the community of Thief River Falls. They have worked closely with NCTC to develop the current certificate and diploma program in place, and offer scholarships to incumbent workers in effort to retain them as they upgrade their skill base and compensation. Smaller employers, many of who subcontract welding services to manufacturers, are recruiting and training people at their own cost to fill their demand for welders.

It is sobering to consider the fact that the workforce shortage is so acute that the prospect of business expansion is minimal. This is illustrated by the fact that both Polaris Industries and Arctic Cat located major components of their business operation to other areas of Minnesota to access a qualified workforce. It is for this reason that new collaborations and strategies such as that defined in this proposal must serve as one of the multiple strategies required to ensure business retention in the region.

Work plan and timeline

The intent of this proposal is to develop curriculum and provide pre-certification Technical Math Skills training for adults who are considering welding as a career goal, as well as those

entering or currently enrolled in NCTC's Production Welding or Welding Process Technology programs. This will include researching, developing and adapting curriculum which can be benchmarked with the colleges' current welding program curriculum. Once curriculum has been adapted and adopted, ABE will begin the process of training teaching staff, purchasing instructional materials, and establishing criteria for student eligibility. The WorkForce Centers, NCTC, and ABE will work collaboratively to market this training to potential learners and ABE will deliver the training. Our goal is to begin pre-certification Technical Math Skills training courses on NCTC campuses prior to the beginning of summer semester in May of 2008, with a second and third session to be offered prior to, or concurrent with, the beginning of summer and fall semesters.

All curriculum developed as a result of this training initiative, if funded, will be shared with others who request it.

Curriculum will be developed jointly by NCTC and ABE staff. All instruction will be delivered by ABE. Students will be pretested with the Test of Adult Basic Education 9/10 upon entrance into the classroom to determine an initial functioning level, and will be post tested at the end of instruction to determine an exit level and level change, as indicated by the National Reporting System educational functioning levels. The goals of this instruction are for students to achieve the academic competencies necessary to make a level change commensurate with the TABE 9/10. The program will be designed to offer short term instruction centered on the first chapters of the math textbook currently being used in the welding program: *Mathematics for Technical & Vocational Students*.

Those students who regularly attend class and make a level of change at the end of instruction will be given a certificate of achievement which can be added to their employment portfolio. As an incentive, students who enroll in the Production Welding will be allowed to keep the textbook: *Mathematics for Technical & Vocational Students*, (ISBN: 0130104329), which has an approximate value of \$120. This textbook will then be used in the Production Welding class.

Instruction in this class will address the following foundational math skills:

Addition, subtraction, multiplication and division of whole numbers, including:

- Use of a calculator
- Multiple digit numbers
- Identification of divisor and dividend

Addition, subtraction, multiplication and division of fractions, including:

- Converting between mixed numbers, whole numbers, improper fractions, and proper fractions.
- Identifying common fractions

- Reducing common fractions
- Finding a least common denominator
- Multiplying fractions and reducing to lowest terms
- Dividing fractions and reducing to lowest terms
- Dividing complex fractions

Converting between decimals and fractions, including:

- Decimal to fraction, reducing to lowest terms
- Fraction to decimal, with proper rounding technique
- Using a decimal equivalency chart

Addition, subtraction, multiplication and division of decimals

Understanding metric measurements, including:

- Converting between standard and metric measurement

Activity timeline

Date	Activity Description
March 2008	Convene partners upon receipt of grant to review and plan project activities
April 2008	Develop literature to explain and market the program
	Mutually develop curriculum with input from NCTC and NWSC ABE staff
April 2008 and Ongoing	Recruit prospective training participants
May 2008 and Ongoing	Deliver three pre-certification Technical Math Skills training classes on each NCTC campus
March, June, September & December 2008	Convene partners on a quarterly basis to review, adjust and modify, as needed, to meet the goals of the project.

Collaborations and Partnerships

The partners involved in this grant include: The Northwest Private Industry Council, the Northwest Service Cooperative Adult Basic Education consortium, the WorkForce Centers in Thief River Falls and Crookston, and the Northland Community and Technical College campuses in Thief River Falls and East Grand Forks.

Staff of the various partner agencies will possess a clear understanding of this training initiative. Literature explaining the benefits of the training, application, and other details will be provided to prospective participants to help them make an informed choice as to whether this program is appropriate for their needs. All of the partners will share the responsibility for recruitment and outreach to potential participants.

Any of those customers who express an interest in the program will be referred to the NWSC ABE consortium which will have sole responsibility for determining eligibility and overseeing registration into the program.

Evaluation

Overall, the success of this important will be measured by the extent to which the goal of the program is achieved: to increase employability options by developing and providing pre-certification Technical Math Skills training with direct linkages to Northland Community Technical College's Production Welding certificate.

Specifically, we will measure the degree to which foundational math skills are acquired by program participants using pre and post assessment testing. The pretest assessment will place the students in an entry educational functioning level, and post testing will determine how many of them have been able to gain the skills necessary through instruction to move them into or beyond the next educational functioning level. The goal will be to meet or exceed the negotiated target levels set forth annually by Minnesota Adult Basic Education regarding the proportional number of students whose success will be based on completion of their educational functioning level.

Quantitative information will be generated by the Minnesota ABE reporting and Collection System software for review by the project partners during quarterly meetings. This will include information such as the number of individuals who enrolled in the program, the number of hours spent in contact with each student, the number of students referred to the program by each partner agency, the number of students who successfully complete their entry educational functioning level, and the number of students who enroll in the Production Welding program, or another post secondary educational program, upon completion of this class.