Sitting Bull College Looks to Expand Its Welding Program On and Off the Standing Rock Reservation

Despite challenges, this welding program at the tribal college continues to persevere as it works to fill the industry with its students

BY ROLINE PASCAL

Standing Rock Reservation takes its name from a natural formation that resembles a woman with a child on her back. Straddling the border between northern South Dakota and southern North Dakota, it is the fifth largest reservation in the United States covering 2.3-million acres. It stretches across tall grass plains, rolling hills, and buttes that border the Missouri River.

Taking the Standing Rock National Native American Scenic Byway, you would likely journey where Lewis and Clark stopped 14 times and mountain men like Jim Bridger and Jedediah Smith passed through. You’ll also venture through the birthplace of Sitting Bull, one of the most widely recognized Native American historical figures who advocated for maintaining the land, rights, and ways of the people.

In the Native American reservations, tribes invest on and off their lands to generate revenues and ensure economic opportunities. The results have been tribal-controlled programs emerging. While dependence on the federal government is still a norm, reservations are developing skills to continually build their economies, and they are doing it through higher education.

The Timeline of Sitting Bull College

College classes were first offered on the Standing Rock Reservation in 1968 through the Division of Continu-
Fig. 1 — A — A welding student attempts to strike an arc for the first time with an E7018 electrode to perform shielded metal arc welding; B — a welding student produces oxyacetylene welds in the flat position with an ER70S6 filler rod. Oxyacetylene welding is used as an introduction to the gas tungsten arc welding process.

ing Education at then-named Bismarck Junior College. Recognizing the need for a higher education institution that could provide opportunities for people in the area, several movers and shakers on the reservation began the process of establishing one of the nation’s first tribal colleges, Sitting Bull College, which was originally named Standing Rock Community College. The institution, located in Fort Yates, N.Dak., began operation on Sept. 21, 1973. At its inception, there were only three full-time people on staff.

The process of seeking accreditation was initiated in 1975, and in 1984, the college received full accreditation. To mark this achievement and recognize their continued growth, the college officially changed its name to Standing Rock College.

More than a decade later, the Standing Rock Sioux Tribal Council voted to officially amend the charter, changing the college’s name to Sitting Bull College (SBC) on March 6, 1996. The objectives were not altered, and the college continues to operate as the charter specifies. Currently, there are more than 70 full-time faculty, administrative, and support staff. The original enrollment of 90 students has grown to approximately 300 each semester.

Sitting Bull College not only meets the standards of the higher education agencies, but also provides services to the Native American community. It is tribally controlled, and advisory boards, made up of community members, provide input for program continuation and/or changes.

Sitting Bull College is the primary educational institution on the reservation providing academic and career as well as technical education training. Students can obtain a master of science, bachelor of science, associate of science/applied science, and associate of arts degrees, as well as certificates of completion of a vocational training program.

Amongst courses such as electrical, entrepreneurship, information technology, and construction trades, the certification program offers welding, which was originally created to fulfill the need for specialized workers in various parts of North Dakota.

The Inception of the Welding Program

In 2013, SBC began the process of negotiating and receiving a grant from the North Dakota TREND program. The TREND program is a partnership between the state and tribal institutions in North Dakota that came together as a consortium. The college joined forces with four other colleges, including Bismarck State College (lead institution), to become involved in a U.S. Department of Labor’s grant program that would allow SBC to expand and improve its education and career training programs that can be completed in two years or less. The grant helps the tribal college to add equipment, train faculty and staff, and provide more services to students to increase their success at college and in the job market.

Looking to expand the trades programs and given the welding labor market in North Dakota, as well as a local need for people skilled in the trade, SBC introduced the welding engineering technology program in 2014.

“At that time, there was a local native-owned company employing welders and having a hard time finding skilled people. The welding program was formed with consultation from Bismarck State College,” said Joe McMullen, SBC welding instructor.

That said, the start of the program was rocky. During its first year, 2013–2014, the welding program had no full-time instructor and ran for one semester in the summer. The 2014–2015 year was the first time it was offered full time. The following school year was again without an instructor. The welding program had been considered one of the most successful in the trades program with enrollees, but the number of completers was low. Students enrolled in the welding program were dedicated to the field of work, but they largely gave up on it because it was not fully staffed, and it was inconsistent. Hoping to see a shift, the college hired Joe McMullen as its full-time welding instructor for the 2016–2017 school year, and he is now running the program. Since his hire, the program has advanced.

The Welding Program Progresses

The welding program provides education and hands-on training in common welding processes, operations, inspection, and plate welding along with other aspects of general welding. The curriculum provides students with certification in oxyacetylene, shielded metal arc, and gas metal arc welding gases and processes. Students in the program also gain knowledge of the Occupational Safety and Health Administration standards for welding.
safety practices. They are required to attend a minimum of one job/career fair and apply for two jobs in their field of study. Career opportunities in North Dakota offer a wide array of employment potential from manufacturing, steel construction, mining, energy, petroleum, and other production areas.

The certificate course runs for 16 weeks with a focus on training students to get into an apprenticeship or entry-level position. To be enrolled full-time in the welding program, students must take safety, gas cutting and welding, gas metal arc welding, flux cored arc welding, shileded metal arc welding, and an individual practicum course to meet the requirements — Fig. 1A. Classes cover oxyfuel welding and cutting, plasma cutting, and, although not covered in depth, gas tungsten arc welding — Fig. 1B.

“We spend two hours a day in the classroom discussing each process and how to use them properly. We then spend four hours in the shop putting what we discussed in the classroom to use,” said McMullen.

Students are graded just as heavily on attendance as they are on classroom studies or workmanship in the shop. Lab work ranges from the correctness of weld size and placement, according to the shop’s drawings and the welding procedure specification they’re given, moving up to grading based on the visual acceptance criteria of American Welding Society (AWS) D1.1, Structural Welding Code — Steel, on a scale similar to that used for scoring in the SkillsUSA competition — Figs. 2, 3.

“Once we have covered the very basics with each process, students are given daily shop assignments, which are usually a shop drawing with weld symbols and a welding procedure specification to follow,” said McMullen.

After midterms and having a chance to use all of the processes covered, the welding students pick one or two processes to use for qualification testing on, first, a limited thickness and then an unlimited thickness plate test in 3G vertical and 4G overhead welding test positions.

“This semester, I will begin using the Miller open book online curricu-lum mixed with what I have already been using in the classroom,” said McMullen.

Despite its shaky start, the past five years have seen the young program gradually progress. Enrollment has been fairly steady with 10–12 students during the fall and 6–8 students during the spring semesters — Fig. 4. Ad-
Fig. 5 — The laboratory carries a variety of welding machines to prepare students for anything they may encounter in the field. A — classroom with welding simulators; B — welding shop.

additional, McMullen has continually worked to increase enrollment by going to local high schools to recruit, even though most of these schools offer very limited to no welding courses. The hard work has been met with success stories. Several of SBC’s welding graduates have gone on to work in the construction/building trades field. For example, a recent welding graduate is now working as a manufacturing welder in Bismarck. Realizing the potential, plans are being initiated to lengthen the program.

“This year, I will be working to implement a second semester advanced certificate course, which will give students the freedom to either look for work after completing the first certificate or stick around for the advanced certificate,” said McMullen. “This also gives previous students who have had a chance to spend some time in the job market to come back and refocus their study to a specific area or process and build on skills they’ve already developed.”

Welding students are also focused on achieving their qualifications through AWS and have only one semester to do so. Expanding the program from one to two semesters will allow students to go on more job sites without a tight time frame.

McMullen added that the program is also working to become an AWS SENSE Level II school. He hopes this feat will bring even more credibility to what they are accomplishing at SBC.

Welding Facility Offers a Variety of Machines

The welding laboratory at the college has been designed to facilitate the students’ learning. The 1280-sq-ft facility contains an attached 900-sq-ft classroom. The classroom includes two Lincoln Electric VRTEX® welding simulators — Fig. 5A. The shop includes seven cross-flow ventilated welding booths, three Miller Electric XMT® 350 welding machines, and from Lincoln Electric, two Power Wave® 350s, two Flextec® 350Xs, a Square Wave® TIG 200, and two Ranger® portable units — Fig. 5B.

“We have tried to keep as much variety in the shop as possible to encompass anything a student may encounter once they leave. We even utilize suitcase wire feeders on some of our [welding machines], since that is common to find in many construction and repair applications,” said McMullen.

The machines run from the most high-tech welding machines to the tried and true standard. For personal protective equipment, students are provided with a Lincoln Electric Traditional Welding Gear Ready-Pak® as part of their tuition.

The Instructor Behind the Program

The welding program runs on the fuel of its instructor. With the program working to fill the industry with its students, McMullen uses his expertise to teach his students the industry — Fig. 6.

“Having very little formal training as a teacher, I run the program more like I am training people in the field and on a job site than really a classroom,” he said.

McMullen began welding in high-school but never really thought of it as a career.

“At 24 years old, I found myself married with a two year old and a baby on the way. We were barely scraping by with me working construction in my hometown of Klamath Falls, Ore.,” he said.

McMullen decided to take welding courses at Klamath Community College, and immediately started looking for work upon completion.

McMullen was first hired at P&H MinePro, which is now Komatsu Mining Corp., in Gillette, Wyo., doing repair work on shovels and draglines in coal mines. After two years, he moved on to Wyoming Machinery Co., the local Caterpillar Inc. (CAT) dealer. This time, he was contracted to the Black Thunder mine doing frame repair mainly on offroad mining trucks.

“With CAT, I worked closely with their engineers on several large projects since the mine was a proving
ground for prototype equipment,” he explained.

Due to a slump in coal, McMullen, along with more than 1500 miners and contractors, was laid off. This unfortunate event led him to SBC’s doorstep.

“My friend had been trying for a couple of years to get me to move and start teaching at Sitting Bull College. He lives in the area and felt I had a knack for teaching, since I was the guy who trained most of the new hires before being laid off. I applied and accepted the teaching position with really very little formal teaching experience,” he explained.

Since being hired, McMullen has earned a career and technical education teaching certificate for welding technology from Valley City State University and Bismarck State College. He has also earned AWS Certified Welding Instructor and Certified Welding Educator certifications.

Establishing Partnerships to Build Future Welders

Given the remote setting of the school and the area, in general, the welding program has faced challenges, specifically exposing its students to real-world experiences in the industry.

“We have been trying very hard to get work placement/apprenticeship agreements going,” said McMullen.

“But there is some new industry moving in locally that should help with at least temporary work placement or a kicking-off point for our students to get some form of experience as soon as they leave.”

Many of the students recruited stay locally and are hired to do part-time work, such as repairs and projects, for local ranchers and other members of the community in which they live. Where this may not be considered traditional job placement or employment, McMullen is happy they are utilizing the skills they learned in the classroom and lab to help bring needed skills to the area, including the tribal work department and local transportation.

The students give back to their community by doing projects such as building an anti break-in door latch to help protect the equipment for the wildland fire crews. They’ve also done repairs to bumper mounts, stair mounts, gates, and more for Standing Rock Public Transit. For the tribal roads department, the welding program repaired and rebuilt snow plow mounts for their plow trucks. At SBC’s own maintenance department, the program has completed several equipment repairs and fabrication projects.

“We repaired a bunch of old cast iron wood stoves that were donated to the local Catholic Church. This semester, we will be rebuilding a handicapped ramp for one of the local offices. I am also working with our pre-engineering course to design a welded metal sculpture of some sort that students can work on that will be installed on campus,” McMullen said.

McMullen is working to keep expanding the program. He continues to reach out for support and interest from the local industry to expose his students to the welding field.

Another challenge the program faces is the lack of donations, especially with rising material costs.

“I actually began looking for donations after talking with both Bismarck State and NDSCS colleges, because they rely heavily on donations. However, in my search for donations, even utilizing the contacts provided by both of these other programs, our requests have gone unanswered and even un replied to,” said McMullen.

As for funding, the program has been able to work under a Department of Labor grant for the past few years. Other grants have been applied for to continue to, or help, fund the welding program. McMullen conveyed the school’s willingness to try and keep the program running as long as possible even if the grants do not go through.

“The value of the program for the students and community is fully understood by our administration. Our biggest concern, and really the main reason for seeking the material donations to begin with, is simply to keep the program as cost effective as possible and not to have to raise tuition rates, which could very easily make many students unable to participate in the program,” said McMullen.

From the start, SBC and McMullen never lost sight on the most important aspect of the program, and that is to arm its students with the training and skills necessary to succeed in the workforce.

“My hope for our students moving on is that we can provide them with a source of confidence and accomplishment even if they don’t go into the welding field,” he affirmed.

For many reasons, career training programs at a reservation is different than these programs elsewhere. McMullen knows what the success of this program means to not just the students or the tribal college, but to their tribal land as well.

“It means independence, hopefully bringing manufacturing and jobs to the area as we progress forward so that locals don’t have to go to Bismarck for a good job, and so that local residents are not at the mercy of outside contractors from 75–100 miles away when they need repair work done or something built,” he said. “Many times it can take weeks and/or a lot of money to get any type of welding repair done. It can be done here on the reservation by people trained here on the reservation, moving the people of Standing Rock closer to the end goal of independence as opposed to dependence.”

To inquire about the welding program or ways to donate, contact Joe McMullen, welding instructor, Sitting Bull College, at (701) 854–8066 or joe.mcphillip@sittingbull.edu.

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