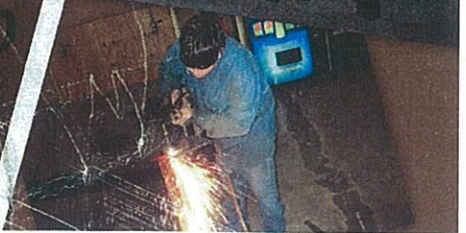
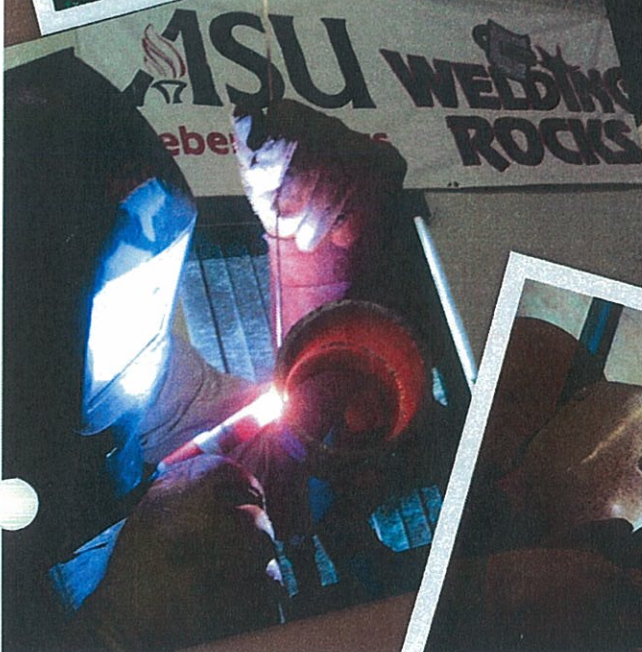
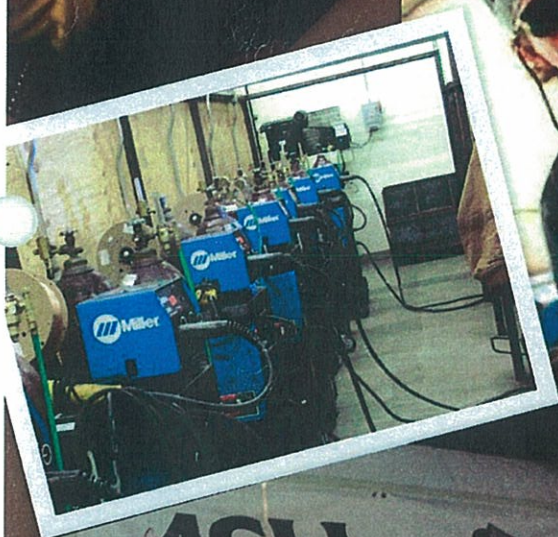


Arkansas State University *Heber Springs*

TECHNOLOGY WELDING



Welding Course Descriptions

AWS welding certifications are available in all classes

Shielded Metal Arc Welding- 4 credit hours. This course is designed to teach students the basic knowledge required to operate welding equipment, function safely in the welding shop and demonstrate all types of shop practices. Students will learn to make basic fillet welds in all welding positions. Students will also learn and study welding nomenclature, design of joints, and electrode classification.

Gas Metal Arc Welding- 4 credit hours. This course is designed to study and practice the use of the gas metal arc welding process. The student will learn the principles of constant voltage power sources. Also, students will learn how to operate and maintain various types of wire feed welders.

Gas Tungsten Arc Welding- 4 credit hours. This course will introduce the study and practice of the gas tungsten arc welding process. The student will first gain practice of this skill through the use of oxy-acetylene welding. Then the student will continue to progress using similar applications in the tig welding process. Joint designs will be mastered on carbon steel, aluminum, and stainless steel.

Metal Fabrication- 4 credit hours. This course covers the theory and practice of layout and fabrication of basic welding fittings using sheet metal. The student will learn the process of fabricating the basic welding fittings from sheet metal using different methods.

Advanced Shielded Metal Arc Welding- 4 credit hours. This course is an advanced arc welding course. Advanced arc welding techniques will be performed using mild steel electrodes on groove welds in the flat, horizontal, vertical, and overhead positions on structural plates. Students will have the opportunity to earn their AWS D1.1 Welding certifications and then move on to pipe welding.

Advanced Gas Metal Arc Welding- 4 credit hours. In this course, advanced mig welding practices and power source technology, including programmable and pulsing constant current constant voltage machines, will be utilized. Machine set up and repair will also be utilized. Ferrous and non-ferrous alloys will be practiced. Metal transfers including short circuit, spray, globular, and pulsed will be studied and practiced.

Advanced Gas Tungsten Arc Welding- 4 credit hours. This course is comprised of the advanced study and practice of the Gas Tungsten Arc Welding process. Basic skills will be enhanced through mastering out of position joints, fabricating projects, and pipe welding techniques. Extensive use of air-cooled torches and scratch start techniques will be utilized.

Advanced Metal Fabrication- 4 credit hours. This course covers theory and practice of layout and fit up of structural and piping systems. Blueprint reading skills and use of different types of measuring devices will be used in this course. Students will learn the process of fabrication of structural and piping systems through a series of competency-based exercises.

Pipeline Welding- 4 credit hours. This course provides the student with a thorough understanding of pipe welding procedures and weld quality in accordance with AWS, ASME, and API 1104 welding codes. It provides training to develop the skills necessary to produce quality open root pipe welds in the 2G, 5G, and 6G positions.



ARKANSAS STATE
UNIVERSITY
HEBER SPRINGS
A Center of ASU-Beebe

Thank you for your interest in the Welding Program at ASU-Heber Springs! You have made a wise choice by exploring the options in this career field, and we can certainly assist you in the process.

71 Cleburne Park Rd
Heber Springs, AR 72543

Our students have the opportunity to complete a Certificate of Proficiency, a Technical Certificate, or an Associate of Applied Science Degree in Welding Technology. They can also earn various welding certificates per AWS D1.1, ASME, or API 1104 standards.

Phone:
501-362-1271

Fax:
501-362-1296

Email
tagreen@hebersprings.asub.edu

Welding classes for high school graduates and other adults are available Monday through Thursday with scheduling for both day and evening classes offered. Several local high schools participate in the daytime program by allowing their juniors and seniors to attend welding classes on our campus where they receive both high school and college credit.

Our welding lab is equipped with 20 state of the art welding machines. These welding machines can be used for SMAW, GTAW, GMAW, and FCAW processes. Each student has his or her own welding station, well equipped for all welding positions and applications. We also provide training in metal fabrication where students will gain the knowledge and experience needed to become professionals in the welding industry.

Please take time to review the enclosed materials including course descriptions, program requirements, career opportunities, and testimonials addressing the quality of our program. Please let me know if you are interested in learning even more about our program. I would be glad to schedule a time for you to come by for a tour so you can see for yourself what we have to offer you in this exciting and growing career field.

Sincerely,

Thomas A. (TAG) Green
Welding Instructor
ASU-Heber Springs
71 Cleburne Park Rd
Heber Springs, AR 72543
501-362-1271

Welding Program Requirements

Certificate of Proficiency Welding Technology

Any two of the following:

WELD	1004	Shielded Metal Arc Welding
WELD	1104	Gas Metal Arc Welding
WELD	1204	Gas Tungsten Arc Welding
WELD	1304	Metal Fabrication

Program Requirements	Total	8hrs
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Technical Certificate Welding Technology

General Education Courses (6 hrs)

COM	1033	Career Communications (or higher)
MTH	1013	Technical Mathematics I (or higher)

Welding Technology Courses (16 hrs)

WELD	1004	Shielded Metal Arc Welding
WELD	1104	Gas Metal Arc Welding
WELD	1204	Gas Tungsten Arc Welding
WELD	1304	Metal Fabrication

Advanced Welding Technology Courses (8 hrs)

Any two of the following:

WELD	2004	Adv. Shielded Metal Arc Welding
WELD	2104	Adv. Gas Metal Arc Welding
WELD	2204	Adv. Gas Tungsten Arc Welding

Program Requirements	Total	30hrs
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Associate of Applied Science Welding Technology

General Education Courses (21 hrs)

ENG	1003	Freshman English I
ENG	1013	Freshman English II
ENG	1033	Technical Communications
MATH	1003	Intermediate Algebra (or higher)
CIS	1503	Microcomputer Applications I
PSY	2013	Intro. to Psychology OR
SOC	2213	Principles of Sociology
HIST	2763	U.S. to 1876 OR
HIST	2773	U.S. Since 1876
POSC	2103	U.S. Government
SPCH	1203	Oral Communications

Welding Technology Courses (24hrs)

WELD	1004	Shielded Metal Arc Welding
WELD	1104	Gas Metal Arc Welding
WELD	1204	Gas Tungsten Arc Welding
WELD	1304	Metal Fabrication
WELD	2004	Adv. Shielded Metal Arc Welding
WELD	2204	Adv. Gas Tungsten Arc Welding

Technical Related Courses (7 hrs)

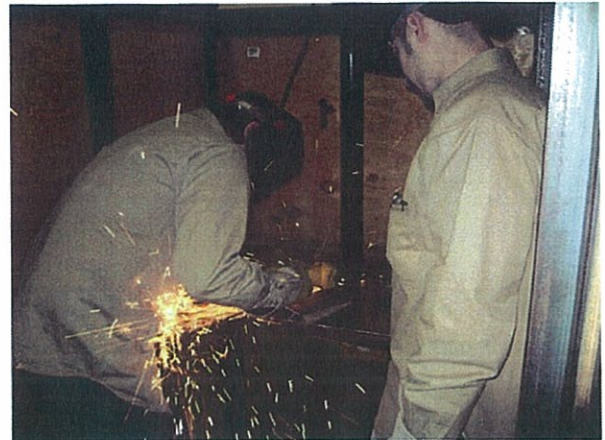
WELD	2124	Technical Blueprint Reading
MTH	1013	Technical Mathematics I

Welding or Technical Related Electives (8 hrs)

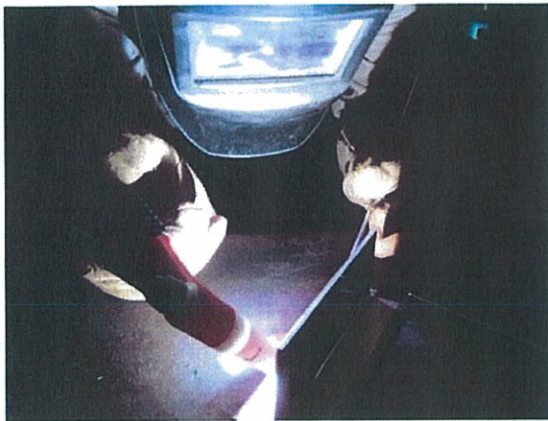
Program Requirements	Total	60hrs
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Why Should I Choose a Career in Welding?

Do you enjoy building things?
Are you a great diver?
Enjoy working on vehicles?
Are you good at math and science?
Would you like to travel the world?
Do you like to create art?
Would you like to own your own business?
Are you a great communicator who enjoys working with others?



If you answer **Yes** to any of these questions, let's take a deeper look at becoming a professional welder.

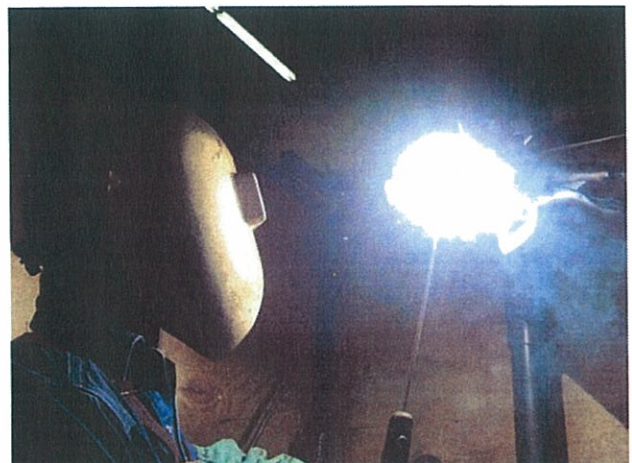


Did You Know?

Welding has been called "the best kept secret" in career planning. Welding is widely used in construction, manufacturing, and many other industries, making it a critical skill that will always be in demand. From the beginnings of civilization, we have relied on the skills of welders to enrich our lives.

How About a Little History...

Depictions of ancient welders and tools are found in the long sealed Egyptian tombs. President Roosevelt, in a letter to Prime Minister Winston Churchill, boasted about the discovery of a new welding technique enabling America to build ships with a speed unequalled in history of shipbuilding. Discoveries and developments in welding processes and metallurgy led to the technological marvels that changed the world we live in today.



Note: ASU-Heber Springs expresses its appreciation to the American Welding Society for much of the information provided in these pages.

Interesting Facts

- The average welder is in the mid-fifties. Many of these people will retire within the next 10 years, creating a tremendous need for skilled and experienced workers to replace them.
 - There is a projected labor shortage of 200,000 welding professionals by the year 2010 as these baby boomers retire.
 - Nearly half of U.S. industries reported difficulties locating qualified individuals with welding expertise – from apprentice welders to engineers.
 - While the number of welders employed in the U.S. has declined, the U.S. Department of Labor Women's Bureau reports that the number of female welders in the U.S. has actually increased from 29,000(4.9%) in 2000 to 32,000(5.9%) in 2006, reflecting the enormous opportunity that exists for women in the welding field.
 - According to a recent study by the National Association of Manufacturers, 60% of the manufacturers reject half of all applicants as unqualified because of lack of basic skills.
-

Frequently Asked Questions

1. How much will school cost me?

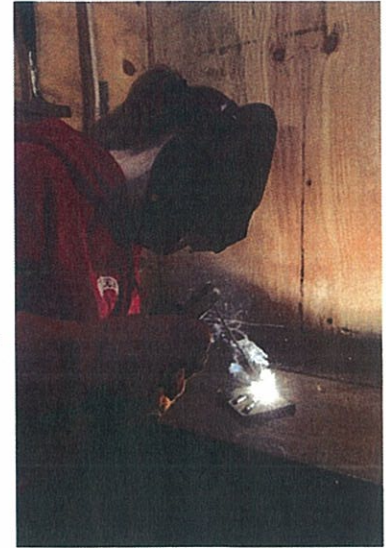
- As of January 2010, tuition is \$68 per credit hour for Cleburne County residents, \$78 per credit hour for in-state residents, and \$134 per credit hour for out-of-state residents. There is also a \$100 welding fee per class, a \$5 per credit hour quality improvement fee, and a \$3 per credit hour infrastructure fee. *(Ex: A 4 credit hour welding class plus fees would cost \$404 for a Cleburne County resident.)*

2. Do I have to be a high school graduate?

- **NO!**
 - ◊ We have a concurrent high school program in which high school juniors or seniors can take welding classes for high school and college credit.
 - ◊ If you are a post-secondary student that did not graduate high school, we accept GED diplomas, or we can provide you with services to complete your GED on our campus.

Women in Welding

For decades women have played a role in the welding industry, and several employers and other industry members have been noticing more women joining the field. In fact, while the rate of welders in the U.S. has been shrinking, the number of female welders in the U.S. has remained steady. There now exists an enormous opportunity for women to become trained, and many manufacturers have already stepped up recruitment efforts targeted at women.



Is Welding Right for Me?

For both men and women, the prospects for a positive future in this industry are extremely encouraging and the career choices are endless. Because of the flexibility of the profession, a welding career can be tailored for various lifestyles.



What does this mean to you?

Opportunities in the welding field are endless and can be extremely rewarding. Because it is widely used in construction, manufacturing, and many other industries, employers have a constant need for skilled welders. Welding is an important part of our nation's growth and stability. In fact, there is a strong conviction that a large part of the U.S. economy is dependent on welding and that continued advances in the field help to drive this nation's productivity and strengthen its financial stability.

There are multitudes of career options in the welding industry.

Whether you enjoy working with your hands, traveling the world, inspecting and analyzing things, working with numbers, communicating or inspiring others, there is a career opportunity available in the welding industry. Did you know that some welding careers require no welding whatsoever?



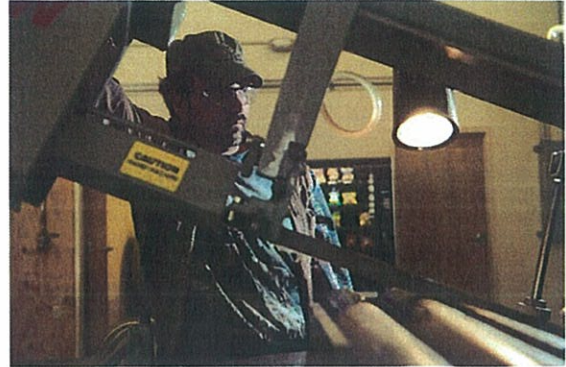
There has never been a better time to be a welder. As, Ilan Brat, the author of the recent *Wall Street Journal* article "Where Have All the Welders Gone, As Manufacturing and Repair Boom?" describes, the nation is "literally starving for welders", and employers are increasing salaries and benefits to entice career-minded youth to the field.

Careers In Welding

These careers are only a few of the many career choices currently available in the welding industry.

Welders

Welders permanently join pieces of metal with metal filler, using heat with or without pressure. They construct and repair parts of ships, automobiles, spacecrafts, and other products. You may find these individuals joining beams and steel reinforcing rods in buildings, bridges, and highways.



Welding Machine Operator

Welding machine operators set up, adjust, operate, and tend welding machines to join metal components of products such as auto and aircraft parts, brackets, panels, housings, electrical circuit boards, and jewelry parts. These workers may use blueprints and other instructions to determine the specifications of a particular product or job. Equipment used includes arc welding equipment, gas welding torches, spot welding guns, resistance welding guns, soldering/brazing machines, bottled nitrogen, and oxygen gas.

Welder Fitter

These individuals lay out, fit, and fabricate metal components to assemble structural forms, such as machinery frames, bridge parts, and pressure vessels. They must have extensive knowledge of welding techniques, metallurgy, and engineering requirements. Some welder fitters may be required to analyze engineering drawings and specifications to plan welding operations when procedural information is unavailable.



fabrication industry increases.

Welding Technician

Welding technicians understand welding processes, metallurgy, mechanical testing, inspection and fabrication of weldments. Technicians are usually involved in testing and improving welding processes, procedures, and equipment, and often hold job titles in addition to welding technician, such as a welding supervisor, inspector, and sales representative. The demand for skilled technicians will continue to grow as the use of automated systems in the metal

Welding Engineer

Welding engineers are the people who design, produce, operate, and maintain welded products. These behind-the-scenes professionals deal with a broad range of welded materials including bridges, buildings, pressure vessels, chemical processing equipment, transportation vehicles for water, land, air, and space travel, and production and processing machines of all types.



Welding Sales

Welding sales persons typically work with an array of welding industry clients such as engineers, job shop owners, or purchasers. Products sold may range from welder clothing and gear to gasses to machines and safety equipment. Performing hands-on sales demonstrations and maintaining frequent interactions with clients is customary. Typically, salespeople are required to build long term and lasting relationships. Depending on the employer, a career in sales can be more flexible than office-based careers and can offer unlimited earnings potential.



Welding Educator

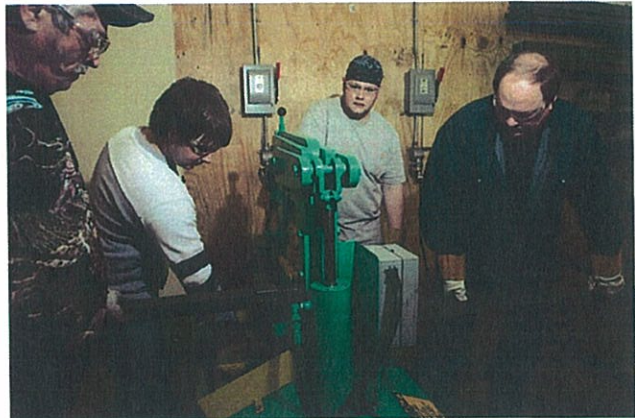
These are the individuals who educate and inspire tomorrow's welders. Welding educators are required to direct and perform operations associated with welder training and classroom instruction. They have a deep knowledge of welding technology and inspection, as well as curriculum development.

Welding Inspector

Welding inspection is one of the most important welding careers available. Because inspectors are needed for quality inspection in nearly every manufacturing-related industry, these professionals have the opportunity to travel the country and even the world. Projects requiring quality inspection may include bridges, buildings, platforms, pipelines, and more. Inspectors also must be able to read drawings, prepare and keep records, prepare and make reports, and make responsible judgments. Certified Welding Inspectors also have the opportunity to be their own bosses and/or contract their services.

Reinforcing and Structural Iron Worker

Structural and reinforcing iron and metal workers place and install iron or steel girders, columns, and other construction materials to form buildings, bridges, and other structures. They also position and secure steel bars or mesh in concrete forms to reinforce the concrete used in highways, buildings, bridges, tunnels, and other structures. Iron workers are employed in all parts of the country, but most work in metropolitan areas, where the bulk the commercial and industrial construction takes place. Most employers recommend a 3- or 4-year apprenticeship consisting of on-the-job training and evening classroom instruction as the best way to learn this trade.

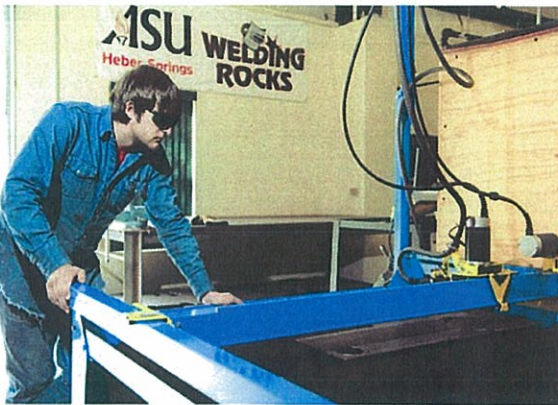


Sheet Metal Worker

Sheet metal workers study plans and specifications to make, install, and maintain heating, ventilation, and air-conditioning duct systems; roofs; siding; rain gutters; downspouts; skylights; restaurant equipment; outdoor signs; railroad cars; tailgates; customized precision equipment; and many other products made from metal sheets. Many sheet metal workers advance to supervisory jobs, take additional training in welding to do more specialized work, move into construction and building inspection, or go into business for themselves.

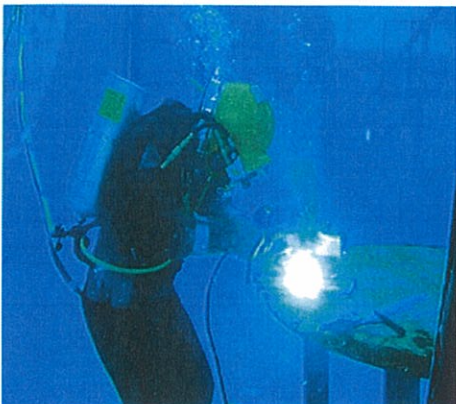
Boilermaker

Boilermakers build, assemble, install, test, and repair metal structures. You may find these individuals working on large boilers, tanks, furnaces, smokestacks, heat exchangers, antipollution systems, and pressure vessels (containers for storing or moving liquid or gas under pressure). Boilermakers often work in the construction industry, assembling and erecting boilers and other vessels. Many also work in manufacturing, primarily in boiler manufacturing shops, iron and steel plants, petroleum refineries, chemical plants, and shipyards.



Pipefitter

Pipefitters are skilled workers who install and maintain pipe systems and pipe supports. They also install and maintain related hydraulic and pneumatic equipment for steam, hot water, heating, cooling, lubricating, and industrial production systems. Military buildings and equipment require pipe systems for water, steam, gas, and waste. Pipe systems are also needed on aircraft, missiles, and ships for hydraulic and pneumatic pressure systems.



Underwater Welding

Underwater welders are two things: welders and divers. Underwater welders typically perform underwater cutting, fitting, rigging, inspection and nondestructive testing, drafting and underwater photography. You may find an underwater welder working on an oil rig planted hundreds of miles out to sea. Some welder-divers earn \$15,000 per year while others earn in excess of \$100,000. Because the majority of welder-divers are paid on a project by project basis, salaries are subject to the same variables as work availability. Many experienced welder-divers go on to become engineers, instructors, and diving operations supervisors.

To Prospective Welding Students:

The welding program at ASU-Heber Springs has opened doors that I didn't even know existed. Beginning with outreach into high school programs and extending to career development and workforce enhancement, this program provides opportunities that you may never have dreamed of either.

I was fortunate in that my high school offered an Industrial Equipment Maintenance course and that the instructor had involved the program with SkillsUSA. Through this, I became involved with the ASU-Heber Springs Welding Program and Instructor Thomas Green. Now, only four years later, I'm a three-time Arkansas Gold Medalist and a National Silver Medalist with an opportunity to compete for a shot at the 2011 World Skills Championship.

I've gone from a high school junior with absolutely no idea what my career goals were to an honor graduate and a focused professional on my way to a teaching career in a field I love. ASU-Heber Springs has given me the skills and knowledge to make all this possible.

I won't lie - the recognition that comes with competing at State and National levels is great. I even have a letter of congratulations from Arkansas Governor Mike Beebe! The prizes and opportunities offered by sponsors and educators have been awesome as well. In fact, I've turned down scholarship offers to some of the most recognized schools in the welding field because I believe so strongly in the programs and leadership at ASU-Heber Springs.

At ASU-Heber Springs, I found my voice...the voice to express how the welding program can make a difference in your life. Both technically and academically, it is second to none. Whether you are looking for a degree, a technical certificate, or simply the skills to complete a job assignment or personal project, ASU-Heber Springs can help you succeed in the same way it has helped me.

Sincerely,

A handwritten signature in black ink, appearing to read 'Aaron W. Carr', with a stylized, flowing script.

Aaron W. Carr,
2007 Arkansas SkillsUSA High School Gold Medalist
2008 & 2009 Arkansas SkillsUSA Post Secondary Gold Medalist
2009 National Skills USA Post Secondary Silver Medalist
2009 ASU-Heber Springs Honor Graduate



GENERAL CONTRACTORS CONSTRUCTION MANAGERS

501-374-8677 / FAX 501-375-7649

January 16, 2007

Dr. Diane Tiner
ASU Heber Springs Campus
71 Cleburne Park Road
Heber Springs AR 72543

Re: ASU Heber Springs Welding Program

Dear Dr. Tiner,

I would like to thank you on behalf of Doug Gallahar, Rick Ward, Karl Bartley and myself for the opportunity to visit your welding facility on 12/28/06. With the 100 years of commercial construction experience between us, we all agree that your welding facility is the most impressive we have ever seen.

When we walked into the shop, the students immediately stopped what they were doing and introduced themselves to us. As we walked around we could not help but notice that there wasn't a spec of dirt, slag or scrap material anywhere. The shop was very well organized. Wow!

The shop teacher, "TAG" is a very likable person. He took time to show us around and explained how the program works. His methods not only include producing quality welding, but disciplined students that will succeed not only in the construction industry, but any industry.

You have a good thing going. Please keep it up!

Once again, thank you.

Baldwin & Shell Construction

A handwritten signature in black ink, appearing to read 'Larry Jones'.

Larry Jones
Project Manager

