WELDING JOURNAL

AWS

APRIL 2024



Welding Education Update

National Welding Month

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AWS Mission Statement

The mission of the American Welding Society is to advance the science, technology, and application of welding and allied joining processes worldwide, including brazing, soldering, and thermal spraying.

AWS Promotes Diversity

AWS values diversity, advocates equitable and inclusive practices, and engages its members and stakeholders in establishing a culture in the welding community that welcomes, learns from, and celebrates differences among people. AWS recognizes that a commitment to diversity, equity, and inclusion is essential to achieving excellence for the Association, its members, and employees.

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Where Have All the Good Welders Gone?



Joe Young
Senior manager, workforce development, AWS Foundation

"Joe, good hands are hard to find. If you know of anyone decent who might be looking for welding work, send them my way, would ya?" Local Wyoming employers have often said a variation of this sentence to me. Now, for those unfamiliar with this type of Midwest jargon from my neck of the woods, this translates to "Where have all the skilled welders gone?" I have certainly heard this statement a lot lately, and not only from a handful of local employers but also from many others from coast to coast. After a while, it began to pique my curiosity and made me wonder: What happened to all the skilled welders? Did they hang up the hood and retire? Have they changed careers? Are they all inspectors now? Or are they still out there?

I was green when breaking out as a young welder almost two decades ago. Looking back, I was fortunate to have been trained, taught, and influenced by several genuine craftspeople throughout the early years of my career. They were phenomenal welders, inspectors, fabricators, and educators who carried themselves with unmatched grace and professionalism. I always admired how talented they were and aspired to be as skilled as them one day, striving for that vast understanding of welding and learning all the tricks of the trade. Being a novice among these seasoned golden arms who would outweld and outwork the youth was empowering and impressive. I flourished in this environment. I didn't realize it at the time, but my early work experience was an informal model of mentoring, where these craftspeople left a piece of their legacy with me.

The need for welders has remained elevated for years, and that is an industry norm we collectively continue to address. However, the emerging narrative of "we don't just need more welders, we need more good welders" continues to grow. What is the criteria to be considered a good welder, and why aren't there supposedly more of them? Are the schools at fault? Are we just being picky? Being a former welding educator, I am frustrated to hear this emerging narrative. As an educator, I enjoyed molding the next generation of welders, and like those mentors who did right by me, I, too, made it a priority to ensure my students were equipped with a solid set of skills and, most importantly, a great attitude. I hoped I was a positive influence on the graduates, and when they hit the workforce and were asked by colleagues where they went to school or who taught them, I was proud my name could be a part of that conversation. This is the legacy I, and many other instructors, want to create.

While being an educator can be tough at times, those who are in the trenches teaching will tell you it is the most rewarding and gratifying job there is. Instructors have an incredibly tough task to accomplish: Prepare an individual who may have little or no experience to successfully enter the workforce in six months to a year or two. These instructors are tasked to produce students who are good welders, which the industry desperately needs, and it appears the entire dilemma is on the shoulders of welding education. That doesn't seem right. Could it be that the good welders, inspectors, engineers, fabricators, and many other craftspeople in the welding industry haven't disappeared but have forgotten about their potential protégés entering the workforce?

It is National Welding Month, and the welding community is always excited to amplify the message of its importance and impact in today's world, so I'll get right to brass tacks. I call on you to do right by the green hands and our welding educators. Let's all continue to invest in molding the next generation of good welders we dearly need and step up to be mentors. Our protégés are waiting, and I look forward to expanding their journey, skills, and knowledge as well as the high standards of our craft together. WJ

"Could it be that the good welders, inspectors, engineers, fabricators, and many other craftspeople in the welding industry haven't disappeared but have forgotten about their potential protégés entering the workforce?"

AWS Celebrates Its 105th Anniversary



In honor of this milestone, read about the Society's early days and view a timeline of accomplishments

BY KRISTIN CAMPBELL

It seems just like yesterday we were in the year 2019 celebrating AWS's 100th anniversary. The *Welding Journal* covered the milestone through unique columns filled with stories honoring our rich history. Now, it's already 2024, and we're marking our 105th anniversary. Below is meaningful text provided by August F. Manz, an AWS Fellow and honorary historian.

100 Years Ago, AWS Was Five Years Old

In 1924, two Sections were added to AWS: the Western New York Section and the Kansas City Section. With the addition of these two new Sections, AWS membership grew to 718 members by midyear. In February, discussions began on the formation of a Detroit Section, which was added in 1925. This year, AWS membership reached more than 62,000.

In addition, the 5th Annual Meeting of AWS was held in New York City during April 23–26, 1924.

In 1924, welding was at its infancy. There was no gas tungsten arc welding, gas metal arc welding, submerged arc welding, or plasma arc welding, to name a few.

The year 1924 was noteworthy for welding because of the following:

- *The* Welding Journal *published 62 papers/reports*
- *Lloyd's Register of Shipping issued arc welding regulations for ship construction*
- *Welded leak-proof aluminum fuel tanks made it possible for four Army Air Service airplanes to circle the globe*
- *In England, Dr. Pulling reported recent x-ray developments made it possible to see through 4 in. of steel and discover the smallest of flaws*
- *An all-welded natural gas pipeline, 14 miles long, was built using acetylene welding*

Today, AWS has become a world class organization. Visit aws.org to learn more.

Works Consulted: "Through the Years with the AWS – A Definitive History of the American Welding Society," a manuscript by T. P. Schoonmaker, 1990–1991 AWS Technical Papers editor emeritus.

On the following pages, there's a timeline highlighting a wide range of AWS accomplishments over the last five years.

Timeline of AWS Accomplishments from 2020 to 2024



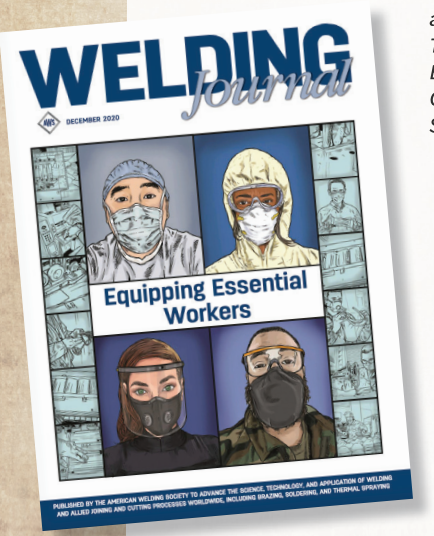
The AWS Board of Directors announced Gary Konarska II as the organization's executive director and chief executive officer, succeeding Ray Shook, who held the position for 15 years.

At the AWS Education 2020 Virtual Summit, both the educational sessions and professional programs were live and interactive, packed with fresh research, insights, best practices, and more. It attracted 489 registrants.

Standards committees began using an online balloting system to review, comment, and approve new, revised, or reaffirmed standards.

2020

The Welding Journal reported on talents getting used for good amid the COVID-19 pandemic and recognized the extraordinary efforts by many to make masks, respirators, face shields, and more.





AWS released D1.1/D1.1M:2020, *Structural Welding Code — Steel*, and A3.0M/A3.0:2020, *Standard Welding Terms and Definitions Including Terms for Adhesive Bonding, Brazing, Soldering, Thermal Cutting, and Thermal Spraying*.



The AWS Foundation launched *weldingworkforcedata.com* to highlight the need for welding professionals.

2021

FABTECH returned to an in-person event and became the first large-scale B2B and manufacturing trade show to be held at Chicago's McCormick Place since the onset of the COVID-19 pandemic.



All standards committee meetings were conducted via teleconference or hybrid, allowing participants to attend meetings without the necessity of travel.



The AWS ARCademy video series, available on *youtube.com/@videoaws*, was launched to provide resources for those interested in educating themselves toward a welding career.



AWS began using AWS D1.1/D1.1M:2020, *Structural Welding Code — Steel,* exclusively in Certified Welding Inspector (CWI) exams, and the Society began offering a comprehensive two-week CWI preparation option.



The *Welding Journal* celebrated its 100th anniversary and published a special column throughout the year in honor of this major milestone. It also debuted a redesigned layout with new type fonts, color palettes, and article templates.



Twenty agents from across the globe assembled at AWS World Headquarters in Miami, Fla., for the International Agents Meeting. Representing 13 companies, the agents in attendance hailed from nine countries.

AWS introduced the Lean Management for Welding Productivity online course, which aims to identify and mitigate waste to help businesses suit their production to demand.



Inspection Trends began being published as part of the *Welding Journal*, a pairing that gives all AWS members access and exposure to more welding inspection content.

The Taiwan International Section of AWS (AWS-Taiwan) hosted a Certified Welding Inspector (CWI) conference to share hands-on experiences and to address the significant roles of the AWS CWIs and Certified Welders in the fast-growing offshore wind farm industry in Taiwan.

In January, ESAB kicked off its Future Fabricators Program with the announcement of 12 scholarships in the amount of $5000 each that are awarded through the AWS Foundation.

In February, the annual AWS Transition Ceremony took place. AWS President Michael A. Krupnicki was welcomed, and he spoke about his long-time experience in the welding industry along with strengthening our board governance, enhancing the volunteer experience, and more matters.

2022

The AWS Foundation awarded more than $2 million in scholarships.



The AWS Foundation started *weldingapprenticeship.com*, an employer-focused resource for Registered Apprenticeship Programs.

2023

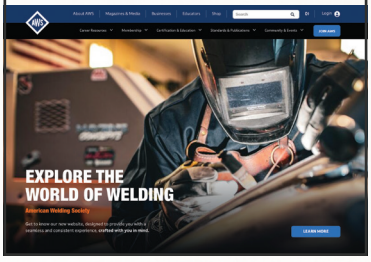


The AWS Board of Directors selected Robert "Bob" W. Roth as the interim executive director and CEO. The appointment came as outgoing Executive Director and CEO Gary Konarska II transitioned into a new role at The Lincoln Electric Co.



AWS launched its free Student Membership for up to four years for all students engaged in a form of industry-related education or training. More than 6000 students took advantage and became members of the Society within the first six months.

The AWS redesigned website debuted at *aws.org*, offering a responsive design optimized for tablets and mobile devices, a live chat feature, and more.

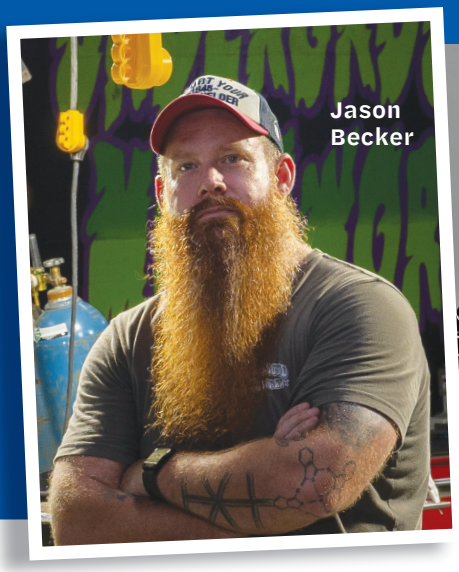


2024

The rest of this year is all ours to achieve many more accomplishments! WJ

KRISTIN CAMPBELL (*kcampbell@aws.org*) is managing editor of the *Welding Journal*.

National Welding Month SHINES BRIGHT







Danea Buschkoetter enjoys teaching welding students at Cloud County Community College, Concordia, Kans.

BY KRISTIN CAMPBELL

AWS ARC Stars share what this month means to them

The AWS ARC Stars — Jason Becker (*@arcjunkiespodcast* on Instagram, and the handles that follow are also found on this platform), Danea Buschkoetter (*@welder_danea*), Sean Flottmann (*@dabswellington*), Stephanie Hoffman (*@_stephanie_hoffman_*), Rachel Lee (*@thetinywelder*), and Chloë Hudson (*@arcweldingangel*) — are really looking forward to National Welding Month 2024. AWS recently established this year's theme as "Increase Your Impact" (more about that is located in the story's end section), and the ARC Stars share their thoughts on their impact and more in the following Q&A.

1. What does National Welding Month mean to you?

Becker: National Welding Month carries a deep significance for me as a welder who has spent the past ten years teaching our craft. It represents my passion for the art of welding and my commitment to passing down knowledge to the next generation of welders.

Buschkoetter: It is a time I can use to recruit the next generation of welders to help the shortage that we are currently facing across the world. During the month, I challenge myself to post every single day with something welding related. Oftentimes this brings new eyes to the content I produce and hopefully inspires other individuals, especially women, into this industry. The month gives us a time to celebrate how great the industry truly is, learn more about welding and trade skills, share cool projects, and shout out to other welders excelling in our industry. The welding industry is truly the backbone of our world.

Flottmann: National Welding Month is an opportunity to shed the spotlight on those hard-working tradesmen and women who most people never even consider — the ironworkers, millrights, fabricators, oilfield hands, pipeline welders, boilermakers, etc. These are the men and women who keep the lights on and keep us warm. This month is our opportunity to remind people of the dire necessity of skilled tradesmen and tradeswomen.

Hoffman: National Welding Month is a time to celebrate and recognize the importance of welding with career perspectives, welder appreciation, and building up our community, allowing life-long welders to aspiring welders to showcase their love for the trade. During this time, I think it's so important that we acknowledge and appreciate the hard work of welders in various sectors, including construction, manufacturing, automotive, aerospace, art, and more. It's a month to celebrate and create a sense of unity and camaraderie among welders and welding enthusiasts.

Hudson: I think welding month is an excellent opportunity to really highlight this trade and how everyone is impacted by

those who carry the skills necessary to build the infrastructure that keeps the world running. Every single person is impacted by a welder's ability in their day-to-day life. Roads, buildings, cell towers, the very car you commute in — all these things require tradespeople — especially welders.

Lee: To me, National Welding Month means 30 days to celebrate all the incredible opportunities, possibilities, and advances in the welding field.

2. How will you celebrate National Welding Month this year?

Becker: I plan to celebrate National Welding Month the same way I celebrate every month, by sharing my knowledge, promoting safety, and nurturing a sense of community among welders while contributing to the growth and recognition of our trade.

Buschkoetter: I plan again to post every single day of National Welding Month on my social media. In my content, I often share educational-related welding content. I also like to shout out to my women welding friends who are excelling in the industry. My game plan this year is to also prefilm my content, so I am not having to film every single day.

Flottmann: The same way I do every week, by fully immersing myself in the obsession that has dictated my career — welding. Whether teaching (I'm currently at the American Welding Academy, Union, Mo.), recruiting, contracting, or welding artwork, my world revolves around this industry.

Hoffman: I will celebrate by supporting the trade in new ways as I move into a new role out from under the hood and into the business side of industry (with Miller Electric Mfg. LLC as Northeast customer experience manager), proving that this career is not a one-way street or a dead end. There is growth and opportunity at each step, taking my industry knowledge and passion for welding education to new heights.

Hudson: I will celebrate by doing what I do best, welding. I'm lucky enough to call Joe Gibbs Racing in Huntersville, N.C., my employer, and it's been an absolute dream come true of a job.

Lee: I'm going to celebrate National Welding Month by sharing tips, tricks, and projects on my Instagram for the entire month of April.

3. How has AWS increased your impact?

Becker: AWS has significantly increased my impact on the welding community. Through their support, I have been able to further my mission of helping, educating, and inspiring the next generation of welders. AWS has showcased my podcast, *Arc Junkies*, and I also host *Weld Wednesday with AWS*; granted me the role of a moderator at FABTECH, and facilitated my participation in AWS Section 510 meetings (Central Florida-Orlando), all of which have allowed me to reach and connect with a broader audience of aspiring welders.

Buschkoetter: As an active member of AWS, my professional journey in the welding industry has experienced a significant uplift. AWS has provided me access to advanced resources, industry-leading certifications, and a community of professionals who share a common passion for welding. Engaging in AWS events, classes, and meetings has not only expanded my knowledge but has also enhanced my skill set. Through networking opportunities facilitated by AWS, I've established connections with industry leaders, enabling me to stay current with the latest advancements in welding technology that I can bring back to my students. The continuous support and resources from AWS have been instrumental in my professional career (instructing welding students at Cloud County Community College, Concordia, Kans.).

Flottmann: AWS has increased my impact in many ways. Aside from giving welders a platform to promote the trades and the benefits of certification, AWS has helped many of our students reach their goals through scholarships and training programs. The recent addition of the ARC Stars is just another facet of the promotional team's efforts to help put the spotlight where it belongs — back onto the hard-working men and women of the trades.


Stephanie Hoffman


Sean Flottmann



Chloë Hudson



Chloë Hudson works at Joe Gibbs Racing, Huntersville, N.C., and likes gas tungsten arc welding.





Rachel Lee performs gas tungsten arc welding to install a job box on the inside of a horse trailer she helped convert into a mobile bar for wedding venues.

Hoffman: AWS has increased my impact by allowing me to grow my network and industry knowledge. The Society has also given me the confidence and support I needed to make many of my career goals a reality.

Hudson: AWS absolutely impacted the trajectory of my career. I was lucky enough to attend trade school and able to get AWS certifications that made me universally qualified post-graduation. This put me ahead of other welders on jobsites coming in, and it was proof of my proficiency right out of the gate. I'm a life-long student and always looking for ways to add to my proverbial tool box. I just accomplished the monumental task of successfully becoming a Certified Welding Inspector (CWI). With this status, I've made myself far more valuable to my place of employment and [given myself] the opportunity to continue adding to that certification to further myself even more.

Lee: To share how AWS has increased the impact I've been able to make, I have to start at the beginning of my welding career to when I was enrolled at Lanier Technical College, Gainesville, Ga., and won my initial membership at a technical meeting hosted by the AWS Atlanta Section. Since that day, I've been able to achieve professional success (operating The Tiny Welder LLC in Georgia, specializing in mobile welding services) in large part due to the network AWS has helped me cultivate via the conferences, seminars, and events such as FABTECH. Getting more involved in my local Section, in turn, helped me increase my impact to a national level.

Increase Your Impact

Since 1996, the month of April has been designated National Welding Month to raise awareness for the welding industry and its available career paths.

"This year's theme, 'Increase Your Impact,' is a call to continuous improvement and active engagement on individual, corporate, and industry-wide levels," said Cassie Burrell, senior vice president, marketing & membership development, AWS.

A variety of events planned through the month include:

- **Take The Torch Membership.** Individuals who become AWS members during National Welding Month will receive 15 months of membership for the price of 12.
- **My Welding Story on Instagram.** Through the month, AWS will highlight stories from those in the welding community and share how welding has shaped their lives. If a welding industry professional would like their welding story to be considered, they can complete the survey at *weld.ng/myweldingstory* for a chance to be featured on AWS's Instagram stories.
- **Special Instagram Live Episode of *Weld Wednesday* Podcast.** Join us for a special Instagram Live event of our *Weld Wednesday* podcast, hosted by Jason Becker, as we delve into the theme of "Increase Your Impact" in celebration of National Welding Month. It will be held on April 3 at 8 PM (EST). The featured guest will be Shanen Aranmór, founder of Weld Like a Girl™, lead CWI/welding judge on Project MFG, and passionate skilled trades advocate. She will share how welding has impacted her life and career and how she has inspired individuals to make a difference in their personal careers, communities, and the industry as a whole.
- **AWS Foundation Swag.** Members who set up a monthly recurring donation of $3 or more at *aws.org/donate* will receive a limited-edition AWS Richardson trucker hat.
- **National Welding Month Discounts.** Through April, AWS will be offering discounts on AWS products and services, including online training, the *Welding Handbook*, and more.

For more information, visit *aws.org/nwm*. WJ

KRISTIN CAMPBELL (*kcampbell@aws.org*) is managing editor of the *Welding Journal*.



Welding instructors take part in a visual inspection exercise.

BY W. RICHARD POLANIN

A New WELD-ED SURVEY Highlights the Current State of Welding Education

The U.S. economy relies on manufacturing, construction, and maintenance to ensure economic health. So far this year, the United States unemployment rate has remained stable, with historic lows hovering around 3.7% (Ref. 1). However, even with the positive employment rates nationwide, there is still a need for 360,000 welding professionals through 2027 (Ref. 2). The welding industry needs skilled workers at all levels. This article explores workforce development efforts nationwide and the needs of and support available to educators.

Workforce Development in Congress

The first major bipartisan overhaul of the nation's workforce training and development system was announced in December 2023 after the passing of a bill to reauthorize the Workforce Innovation and Opportunity Act (WIOA), the law governing federal funding for a wide range of employment services and programs. WIOA was signed into law in 2014 and has been up for reauthorization since 2020. The reauthorization of WIOA focuses on outcomes and attempts to ensure eligible programs are aligned with the skill and hiring demands of employers.

With the bill's passing, educators in the United States face several questions: How will they deliver the needed education and training for welders, welding technicians, and welding engineers? Are instructors teaching the requisite knowledge and skills required to ensure graduates perform successfully in the workplace? How is welding education helping to fill the skills and number gap in the welding and manufacturing

industries? And finally, what do welding instructors find to be limitations to meeting the number of welding professionals needed?

The National Center for Welding Education and Training Survey

To attempt to answer these questions and get a general idea of the state of welding education today, the National Center for Welding Education and Training (Weld-Ed) surveyed 400 welding instructors (from high schools [41%], trade and technical postsecondary schools [32%], community colleges [24%], and universities [1%]) between late 2023 and January 2024.

Funded by the National Science Foundation, Weld-Ed is dedicated to improving welding education and training in the United States through delivering professional development courses, industry and education partnerships, and industry and education research.

Recovering from COVID-19's Impact on Education

Weld-Ed survey results found that enrollment in welding programs has declined since the end of the COVID-19 pandemic. According to the survey, total student enrollment in one or more welding classes was 196,000 in 2023 compared to 206,000 in 2022 and 211,000 in 2021.

However, there is good news on the horizon. In a 2020 Weld-Ed survey, 79% of the instructors polled noted that their students needed to be more prepared to enter the workforce. In contrast, the 2023–2024 survey revealed that only 4% of students were behind in their studies, and 64% showed no long-term effects from the pandemic.

The current survey also found that course completion rates have increased. In 2023–2024, instructors reported that 91% of their students completed a program of study compared to 89% in 2022 and 88% in 2021. In addition, instructors said that the average estimate of welding employment after high school welding program completion was 59%. At the same time, community college and technical school instructors reported that 71% of their students found welding employment after completion. Future Weld-Ed surveys will ask for an estimate of students enrolling in advanced degree programs.

Welding Program Improvement Opportunities

The survey also attempted to determine the limitations to improving welding programs and found that funding, laboratory space, and student motivation were the biggest challenges.

The encouraging news is that there are opportunities for welding programs to have their students succeed despite the limitations. Many organizations and welding professionals volunteer time and resources to teach, mentor, and motivate students — Fig. 1. Programs like SkillsUSA serve as workforce development opportunities for students by promoting a variety of skilled trades as a career through local and national competitions — Fig. 2.

When it comes to welding technology advances, the knowledge and skills required by graduate students must be consistent with the newest technology used in the industry. Fortunately, 89% of all instructors surveyed indicated that advisory committees at their schools utilized industrial partners. At the community college and technical school level, 95% reported using industrial partners.

However, utilizing industrial partners on an advisory committee does not guarantee welding instructors receive the

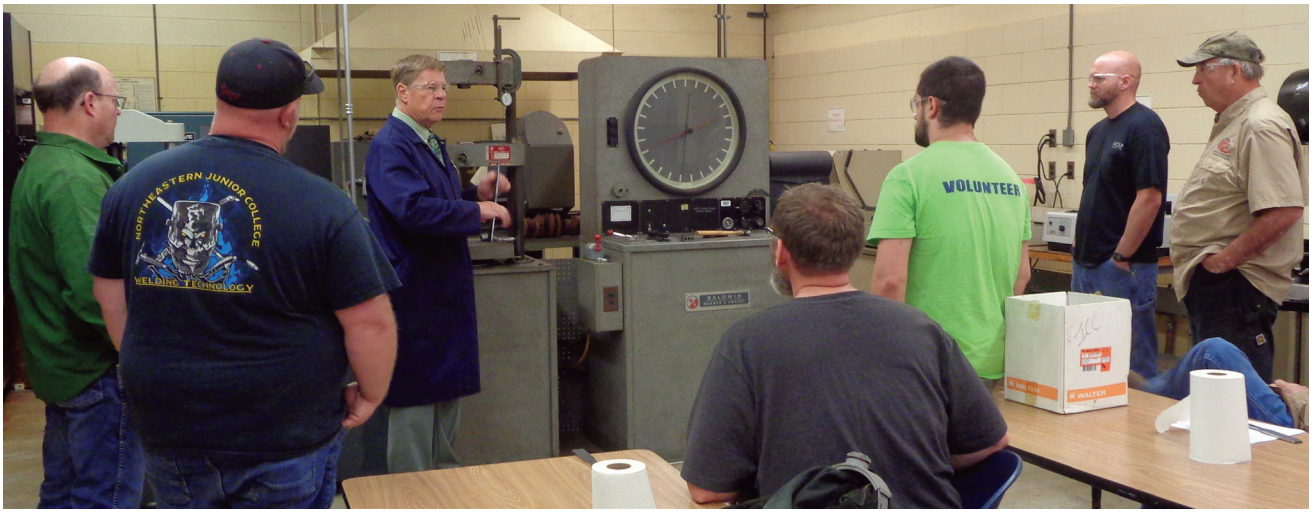


Fig. 1 — Dr. Rick Polanin demonstrates to students how to perform a tensile test.



Fig. 2 — Students at a SkillsUSA welding competition.

advanced welding technology knowledge and skill nor the new developments in education methods needed to educate and train their students effectively.

That is why AWS and Weld-Ed both offer resources to improve welding instructors' knowledge and skills. AWS online learning courses include many content areas for continued welding educator development. Those can be seen at *aws.org/certification-and-education/education.*

Additionally, the yearly AWS Instructor's Institute allows welding instructors to work with the newest welding equipment, network with other instructors, and improve their teaching methods.

Weld-Ed also offers summer professional development courses covering advancements in welding technology, instructional design and teaching strategies, metallurgy, automation, nondestructive examination, and welding codes.

Instructors and schools can also take advantage of the AWS Educational Institution Membership (EIM), and students can take advantage of a free AWS Student Membership (*aws.org/membership*).

The current Weld-Ed survey found that only 32% of the schools surveyed were AWS EIMs, and only 41% of the students at those schools were AWS members. Taking advantage of organizations like AWS and Weld-Ed gives welding instructors an opportunity to renew their knowledge and skills as well as learn about the newest advancements in welding technology. Further, welding students can attend local AWS Section meetings, participate in Section activities, and become a part of the local welding network.

Conclusion

Welding instructors have made significant progress in recovering from the pandemic. Now, the focus is on making sure future welding professionals receive the education and training needed to keep the industry strong.

Weld-Ed and AWS resources are offered to support welding instructors and provide them with opportunities to receive access to the latest student learning theories and the most current welding technology.

With a strong relationship among industry, professional societies, and educators, we can fill the expanding need for welding professionals. WJ

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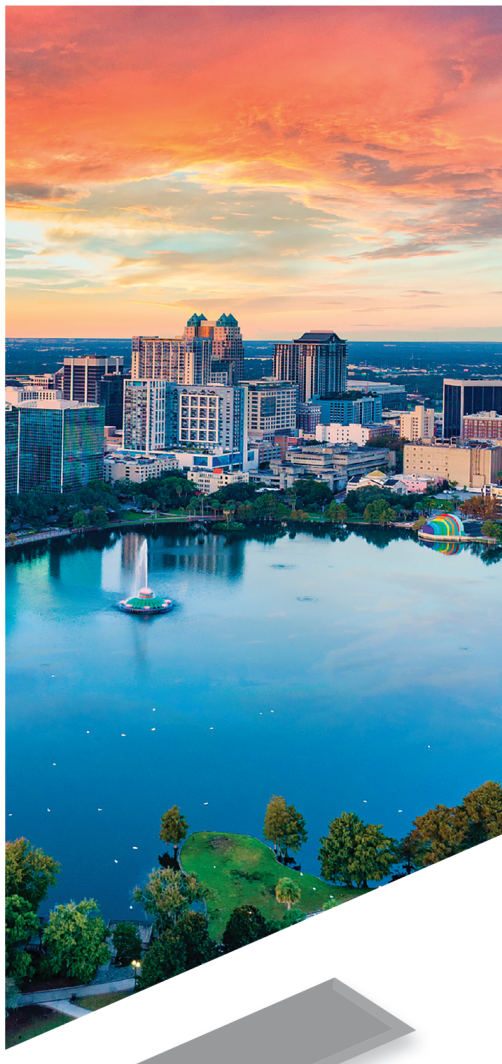
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