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| **Modified DACUM Research Chart**  **Entry-Level Welder/Fabricator**  **CIP 48.0508**  **DACUM Panel**  *Representing 99 years of experience in the welding field*  **Abe Bigelow,** Training Manager  Ellwood National Forge, Irvine, PA  **Doug Nelson,** Educational Outreach Representative  Rosedale Technical College, Pittsburgh, PA  **Jared Peyton**, Weld Engineer  Corry Manufacturing Company, Corry, PA  **Tim Pondel**, Weld Supervisor  Corry Manufacturing Company, Corry, PA  **Steven Sochor**, Welding Technology Program Director  Erie Institute of Technology, Erie, PA  **Lyle Taylor,** Welding Instructor  Erie County Technical School, Erie, PA  **Observers and Facilitator**  **Eric Bimber,** Welding Instructor  Corry Career & Technical Education Center, Corry, PA  **Susan Bogert**, Supervisor of Vocational Education  Corry Career & Technical Education Center, Corry, PA  **Mike Daniels**, Cooperative Education Coordinator  Corry Career & Technical Education Center, Corry, PA  **Jan Kennerknecht**, DACUM Facilitator  Kennerknecht Consulting, Edinboro, PA |  | three multi-ethnic workers with welding equipment - male welder stock pictures, royalty-free photos & images  Corry Area School District  Sponsored by  Corry Area School District  Career & Technical Education Center  Produced by  C:\Users\JanKennerknecht\AppData\Local\Microsoft\Windows\INetCacheContent.Word\KC_logo.jpg  **September 23, 2022** |
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**General Knowledge**

Fractional math (basics- addition, subtraction)

Safety

Industry-specific terminology

English

Manufacturing processes

Visual inspection knowledge

Metallurgy

5S approach to improving workplace efficiency

**General Skills**

Measurement skills

Teamwork skills

Blueprint reading skills

Spatial recognition skills

Hand-eye coordination skills

Time management skills

Communication skills

Organizational skills

**Worker Behaviors**

Safety-oriented

Shows up on time (or early)

Stays on task

Takes correction and instruction willingly

Takes pride in work

Shows desire for excellence

Works well with others (team player)

Displays integrity

Attentive to details

**Current Trends**

Robotics, automation in general

Laser welding

Laser cleaning

Programming skills are needed for robotic welding.

Metal core wire is becoming more popular.

Tig welding is popular.

Most workers are welding with Mig.

**Future Directions**

Automation

Streamlining

Companies will not be able to find enough workers, will need more robotics.

There will be a need for more product control.

The workforce will include a wider diversity of types of welders.

Certifications will become more important.

There will be a bigger support system for quality control.

Costs of gas, materials will increase. (Currently at a 20-year high).

There will be more attention drawn to ordering process, quality inspections. Will have to do more with less, including number of and wages for employees, inventory.

Changing culture of employers in meeting the expectations of employees.

Workplace balance is huge now.

Employee engagement is key to retaining good workers. Good employers have a focus on training programs, offering certifications, encouraging employees to teach others.

**Concerns**

Finding good employees

Work ethics of employees

More work going overseas

Dwindling oil fields will affect industry, more electric/less welding

Increasing costs of materials

Costs of wages will increase.

Need to build a positive work culture for employees.

**Certifications Recommended**

*Certifications For High School Students:*

Focus on safety tests. (Corry CTC currently uses CareerSafe OSHA 10 Hour training online.)

AWS Level 1 Entry Welder certification

Investigate SP/2 Welding certification for students.

*Certifications For Adult Employees:*

AWS (plate welding certification)

ASME (pipe welding certification)

**Feedback Following Lab Tour**

Purchase additional TIG torches, “guts” for MIG welders. Also, CAC leads.

Look for donations of mild steel, bar stock and angle iron, stainless steel, aluminum. Stay away from “exotics”.

Build a mobile burn table

Locate the new shear (already ordered) by the back door.

Install retractable cords to revise the infrastructure.

Install 3-pin locking plugs on power sources. (In a few areas)

Extend beam to lengthen jib crane across lab ceiling. Add electric motor for use.

Purchase a CNC Plasma table. Lincoln Torch Mate 4400 (4’x4’) is recommended.

Have students design project, estimate costs, build project. (Time is money.)

Consider “canned curriculum” for classroom learning (Lincoln Electric)

Purchase a bigger band saw.

Investigate funds for purchasing VRTEX 360+ (virtual welder)

Investigate the LEEPS program- Lincoln Electric’s Welding Certification Program

Offer awareness of CAD operations for students who show an interest/ability.

**Advice for Students from DACUM Panel Members**

Abe Bigelow, Training Manager: “Take the time to try on and find a welding hood that will be comfortable wearing- it will be on your head a lot!”

Eric Bimber, Welding Instructor: “Take total advantage of what you are learning here at the high school level. You will get out of it what you put into it. Learn as much as you can. Measurements matter.”

Susan Bogert, Supervisor of Vocational Education: “Make sure you add value to what you’re doing- your school, your employer, go above and beyond. Make yourself indispensable. If you do that, you can write your ticket to a good life and career.”

Doug Nelson, Educational Outreach Representative: “Always continue learning. Take notes- it’s crucial and you will need them. Listen to your instructor. You are learning a solid career and this will last you a lifetime.”

Jared Peyton, Weld Engineer: “Pick your instructor’s brain. Ask questions- they are there to help you and make you a better welder.”

Tim Pondel, Weld Supervisor: “Take advantage of what you have here. Post-secondary school curriculum is similar. Time is money, don’t look for instant gratification. Do a good job, you may need a reference someday. Everything you do is noticed whether you realize it or not.”

Steven Sochor, Welding Technology Program Director: “It’s your education. You will get out of it what you put into it. Take advantage of it, it is invaluable, but only if you use it. Work to not be anonymous. Make sure you are being noticed. If you’re struggling, act for help. If you’re getting it, let people know.”

Lyle Taylor, Welding Instructor: “The most marketable qualities you have is that you are able to show up for work and are able to be yelled at.”

**Acronyms**

ASME American Society of Mechanical Engineers

AWS American Welding Society

CAC Carbon Arc Cutting

CAD Computer Aided Drafting

CNC Computer Numerical Control

CTC Career and Technical Center

GE General Electric

NDT Nondestructive testing

OSHA Occupational Safety and Health Administration

S/P2 Safety and Pollution Prevention

TIG Tungsten Inert Gas

## Welding Job Titles Identified by DACUM Panel

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## *\*See attached Pennsylvania Program of Study Analysis Report for additional local tasks. The Corry Area School District Career & Technical Education Center would like to thank this dedicated panel of metalworking professionals for providing their expertise. All input will be analyzed for program improvement.*