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| **Modified DACUM Research Chart**  **Entry-Level Welder/Fabricator**  **CIP 48.0508**  **DACUM Panel**  *Representing 161 years of experience in the metalworking field*  **Sam Benninghoff,** Weld Engineer  Corry Manufacturing, Corry, PA  **Brad Custead,** Instructor  Crawford County Career and Technical Center  Meadville, PA  **Jeffrey L. Geesey**, Sole Proprietor  Educational Consulting Services, Indiana, PA  **Logan Hunt**, Tool Room Supervisor  Tonnard Manufacturing, Corry, PA  **Doug Jordan**, Welding Program Director  Erie Institute of Technology, Erie, PA  **Evan Moutsos,** Instructor  Crawford County Career and Technical Center  Meadville, PA  **Lee Turk**, Lead Welder  Ellwood National Crankshaft, Irvine, PA  **Observers and Facilitator**  **Susan Barra**, Supervisor of Vocational Education  Corry Career & Technical Education Center, Corry, PA  **Mike Daniels**, Cooperative Education Coordinator  Corry Career & Technical Education Center, Corry, PA  **John Dougherty,** Welding Instructor  Corry Career and Technical Education Center, Corry, PA  **Jan Kennerknecht**, DACUM Facilitator  Kennerknecht Consulting, Edinboro, PA |  | [http://ts1.mm.bing.net/th?&id=JN.cMemIeue%2bdPLgU01msp9FQ&w=300&h=300&c=0&pid=1.9&rs=0&p=0](http://www.bing.com/images/search?q=images+welder&view=detailv2&&&id=12DF949266CB9BFE3B8C02BB8A861C769CCCC9A3&selectedIndex=0&ccid=G38W/aPP&simid=608034839864544397&thid=JN.cMemIeue+dPLgU01msp9FQ)  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  **November 9, 2017** |
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**General Knowledge**

Basic math

Measurements (fractions, calculations, can read a tape measure)

Blueprint reading

Safety

Physical sciences (metallurgy)

Industry terminology

Algebra I

Trigonometry (sine, cosine, tangent)

Formulas

Metric system

Logistics concepts

Tools knowledge

**General Skills**

Soft skills

Communication skills (oral and written)

Employability skills

Research skills

Interpersonal skills

Time management skills

**Worker Behaviors**

Asks relevant questions

Professional

Motivated

Easy to work with

Listens

Cooperative

Positive attitude

Will give advice and share thoughts

Attentive to detail (precise)

Inquisitive

Consistent attendance

Prompt

Drug free and sober

Team player

Remains on task

Works safely

Follows rules

Follows oral/written directions

Accountable

Separates home from work

Proactive learner

Lifelong learner

Willing to advance

**Current Trends**

Robotics

Laser welding

Friction stir

Certification is huge.

ISO

Automated spot welding

Pipe welding

CNC cutting

Metallurgical advances and changes

Alloys

NDT inspection techniques

Welding machine advancements (adaptable, smaller, more versatile pulse arc)

**Future Directions**

More automation

Lasers replacing torches/plasma

Melding of plastics and metals

Processes will become more advanced.

Laser welding will advance and drop in cost.

Dissimilar metal joining process functionality will improve.

Shielding gas costs will escalate.

**Concerns**

Not enough qualified welders, due to “aging out”

Loss of experience

Keeping up with advancements- need for continuing education

The price of Argon is “going through the roof”.

Industry connections are very important.

State requirements for safety

Technology changing quickly

Carcinogenic smoke and fumes, metal shavings

Importance of keeping up-to-date on best practices and PPE

Ventilation

Lack of apprentices

PR needed to promote the industry and jobs available

Need to change the perception (of the industry/job)

Need to recruit people with the aptitude and ability for the work assigned

**Certifications Recommended**

***For High School Students:*** AWS Sense Entry Level Welder, OSHA 10 Hour

***For Employees:*** Industry-recognized certifications (AWS), CWI, Certified Welder, OSHA 30 Hour, Fork Truck License, GE certifications

**Feedback Following Lab Tour**

Good ventilation…state-of-the-art!

Lighting is good.

Modern welders are available to students.

Nice that classroom is attached and in view of the shop

Nice diversity of equipment- mirrors industry

Booths are set up well.

Lab space seems limited.

Consider how to incorporate some bigger projects (space may be an issue)

Consider repair work for students.

Consider AWS Sense Program for student certifications

Consider shared purchase and usage of robotic weld trainers (pursue state funding).

**Advice for Students from DACUM Panel Members**

**Jeffrey L. Geesey**, Sole Proprietor, Educational Consulting Services: “Be all in. Get everything you can from this program. It is a career and a profession, not just a job.”

**John Dougherty,** Welding Instructor, Corry Area Career and Technical Center: “Come to work every day. Be on time. Give 100%. Watch out for others. Be dependable.”

**Doug Jordan**, Welding Program Director, Erie Institute of Technology: “Don’t be afraid to try everything! Become diverse. Learn everything. Your education is the first step.”

**Brad Custead,** Instructor, Crawford County Career and Technical Center: “Have a strong work ethic. An employer will mold you. Show up every day, work hard, get better and go further.”

**Evan Moutsos,** Instructor, Crawford County Career and Technical Center: “Learn as much as you can. Be confident. Learn how to fabricate, learn your math and how to fit metal movement.”

**Sam Benninghoff,** Weld Engineer, Corry Manufacturing: “Have a plan that can be changed or modified. Look for a niche or specialty.”

**Logan Hunt**, Tool Engineer, Tonnard Manufacturing: “Soak up all you can. Pursue all the knowledge you can while you are on Co-op.”

**Lee Turk**, Supervisor, Ellwood National Crankshaft: “Learn everything you can in this class. You can always fall back on welding with MIG and stick skills.”

**Acronyms**

AWS American Welding Society

CWI Certified Welding Instructor

GE General Electric

ISO International Organization for Standardization

MIG Metal Inert Gas

NDT Nondestructive testing

OSHA Occupational Safety and Health Administration

PR Public Relations

## Metalworking Job Titles and Organizational Chart Identified by DACUM Panel

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## *\*See attached Pennsylvania Program of Study Analysis Report for additional local tasks and most important tasks highlighted in each section. 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.*