|  |  |  |
| --- | --- | --- |
|  | | |
| **Modified DACUM Research Chart**  **Machining**  **CIP #48.0501**  **DACUM Panel**  *Representing* ***164*** *years of experience in Machining*  **Abraham Bigelow, Training Manager**  Ellwood National Forge, Irvine, PA  **Steve Crowther, Tool Room Supervisor**  Tonnard Manufacturing, Corry, PA  **Wilma Dunkle, Business Manager**  MPE Machine Tool, Inc., Corry, PA  **Jeff Horneman, Operations Manager**  Port Erie Plastics, Harborcreek, Pa  **Rob Suprynowicz, Precision Machining Teacher**  Erie County Technical School, Erie, PA  **Wesley McCray, Design Engineer**  Corry Manufacturing Company, Corry, PA    **Observers and Facilitator**  **Cody Willis, Machining Instructor**  Corry Area High School Career & Technical Education Center, Corry, PA  **Susan Bogert, Supervisor of Vocational Education**  Corry Area High School Career & Technical Education Center, Corry, PA  **Jan Kennerknecht, DACUM Facilitator**  Kennerknecht Consulting, Edinboro, PA  **Mike Daniels, Cooperative Education Coordinator**  Corry Area High School Career & Technical Education Center, Corry, PA |  | 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    **October 6, 2023** |
|  |  |  |

**General Knowledge**

#1 is safety practices

Metallurgy

Knowledge of machining materials

Direction in life, what you want to be

Hand tools

Basic machines

Measuring instruments

Work ethics and company expectations

Company focus

Blueprints

First impressions

Basic tooling skills

Inspection reports, how to inspect work

Machine set-up

Machine upkeep (e.g., lubrication, cleaning)

Machining nomenclature

Documentation requirements

Machining formulas

**General Skills**

Troubleshooting skills

Organizational skills

Verbal communication skills

Written communication skills

Interpersonal skills (e.g., w/customers and co-workers)

Fundamental math skills (e.g., geometry, trigonometry)

Team building skills

Basic computer skills (e.g., Microsoft Office, Internet)

**Worker Behaviors**

Excellent attendance

Has good transportation

Team player

On time and ready for work!

Good attitude/willingness/respectful

On task, puts cell phone away during work hours

Considers the big picture is relevant to current task

Can receive constructive criticism

Learns from mistakes or failures

Desire to advance knowledge (drive to grow, continuous improvement)

Follows company rules

Self-motivated

Self-supervised

Can own mistakes and take responsibility

**Current Trends**

Greater need for employees and retention of employees is a concern.

Greater need to train new employees

Higher demand for automation (adding robotic arms to load/unload, robots for measuring dimensions on parts)

Cameras for inspection/production, used on G25 robots

Investment in robotics grew out of COVID impact

Employee behaviors have changed after COVID- lack of responsibility/ownership/tenacity for work.

Lack of concern for work, lack of discipline and respect

Focus and dedication is important and will reap rewards.

Background knowledge in maintenance and repairs is lacking. Greater need for training on this.

The manufacturing environment has become faster paced. Customers want things sooner. Causes a chain reaction, compounds the situation for need of training.

Supply chain issues are still a problem, but raw materials supply is better.

Different generations have different needs/wishes. Today’s new employees want to know the “why” regarding tasks, requests, rules, etc.

Schedule flexibility is based on production demands. May be able to work four ten-hour days based on production demands. Three-day weekends plus overtime can occur with four twelve-hour days.

**Future Directions**

AI will supplement skilled labor at some point.

Tool & Die makers will need to be knowledgeable about AI.

There will be a need for AI Operator or Co-programmer position.

**Concerns**

There is a concern for lack of skilled labor (engineers, toolmakers). Manufacturing could be affected in a big way.

Importing parts and molds from China, Mexico, India affects US businesses negatively.

There is a concern for numbers of motivated trainees, workers, people who want to learn.

**Certifications Recommended**

NIMS certifications are respected, but not required. May give applicant an edge in interview.

Mandated safety training (lock out/tag out, fork truck operations, OSHA training, PPE)

Voluntary First Aid training

**General Recommendations for the Program**

Consider rewarding students for good worker behaviors (e.g., can earn time for personal projects, T-shirt, certificate, notes of appreciation, post cards are easy)

Train them to be leaders (e.g., peer tutor, tool room attendant, assisting other students, tour guides)

Put together a “wish list” to share with local businesses for donations of supplies, steel, bronze, scrap metal, tools. Panel members mentioned several times that they want Corry’s Machining program to be successful.

Discuss injection molds with students. Ask industry member for a sample.

Consider “toggling” the afternoon curriculum content in alternating years.

Space is quite limited in the lab, consider removing the one bench type turret style collet lathe not being used. It is very limited on what it can produce (has very limited adjustability or part variance).

**Advice for Students from DACUM Panel Members**

Abe Bigelow – “Think through the process. Know what you want to accomplish before you start cutting.”

Steve Crowther – “Take ownership and pride in what you do. Never stop learning. If you make something, ask questions. Own it.”

Wilma Dunkle – “Never stop learning. Employees who are looking to learn are the ones who will be more successful.”

Jeff Horneman - “It is a rewarding career and can pay benefits, hard work is rewarding.”

Wes McCray – “When you make a mistake, it’s not a failure but an opportunity to learn.”

Rob Suprynowicz – “Focus, put blinders on from outside influences and media. Focus.”

Cody Willis - “If you fail to plan, you plan to fail. Execute your plan, become successful.”

**Acronyms**

AI Artificial Intelligence

GD&T Geometric Dimensioning and Tolerance

OSHA Occupational Safety and Health Administration

NIMS National Institute of Metalworking Skills

PM Preventive Maintenance

SPC Statistical Process Control

## Program-Related Job Opportunities for Students

## 

## *These are just some of the opportunities for graduates of the Machining program!*

## *See attached Pennsylvania Machining Competency Task List for additional local tasks added by the DACUM panel. The Corry Area School District Career & Technical Education Center would like to thank this dedicated panel of professionals for providing their expertise. Corry CTEC will analyze this input for program improvement.*