

thyssenkrupp Youth Apprenticeship

Program

2017 / Michael Barth
thyssenkrupp Components Technology Camshafts

engineering.tomorrow.together.



thyssenkrupp

Designing a Workforce Sustainability Model Based on the German System



Berufliche Bildung (Duales System)

Betriebliche Ausbildung Schulische Ausbildung



Zusammenarbeit



Rechtliche Grundlage

- Berufsbildungsgesetz
- Ausbildungsordnung
- Berufsausbildungsvertrag

Rechtliche Grundlage

- Lehrpläne
- Schulpflicht
- Schulgesetze der Länder



Dual Education System



Designing a Workforce Sustainability Model Based on the German System

VVEDS
Vermilion Vocational
Education Delivery System



**Danville Area
Community College**

College Express

High School

Community
College

Practical
Application
(Internship /
Apprenticeship)

College Express

cooperative Career and Technical Education

Dual Credit
(high school/college)

No cost
to students and companies

18 Programs
health care to manufacturing



Visit the County Schools

- We visit all the county high schools.
- We speak to the sophomore class.
- The larger schools we spend multiple days to reach more students.



Develop Literature

This year we will be doing more posters and flyers in the schools and community.

Have plenty of literature. You are competing against sports, extra curricular activities and sometimes part time jobs.

We do make time for the Youth Apprentices to take part in all of these activities. The schools are very supportive of the program and work with us on schedules.



Program Requirements

- Junior Status
- 16 years old
- GPA of 2.5 (on a 4.0 scale) or 3.15 (on a 5.0 scale) –monitored quarterly
- Application and Interview Process
- Guardian support to the Youth Apprentice
- Solid two-year commitment to the program



How the program works

High School

- Youth Apprentices attend their regular high school courses in the morning.



Thyssenkrupp / DACC NIMS Program

- The afternoons alternate between thyssenkrupp and DACC (Danville Area Community College).



Structure

When we started the program, the Youth Apprentices went to the departments and were given medial tasks.

They didn't have any real tasks that made them a value add to the department.

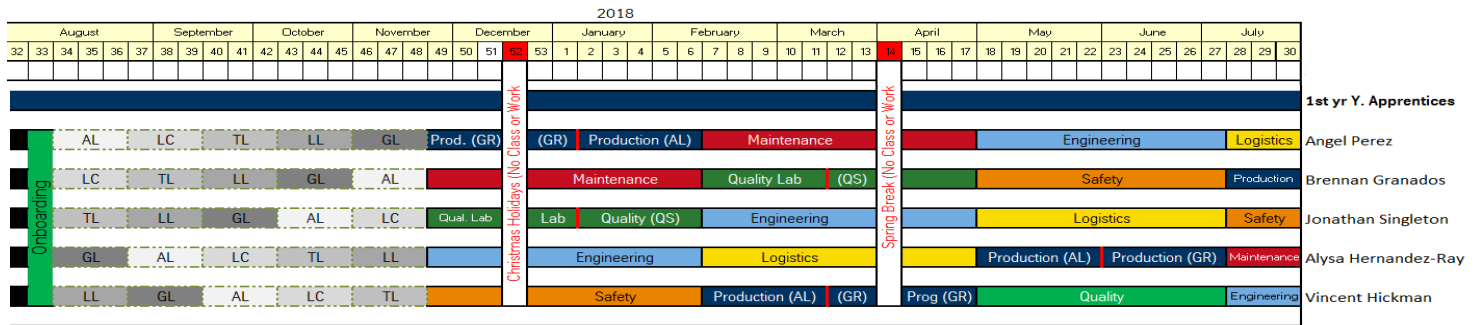
We felt that there needed to be a change in the rotations.



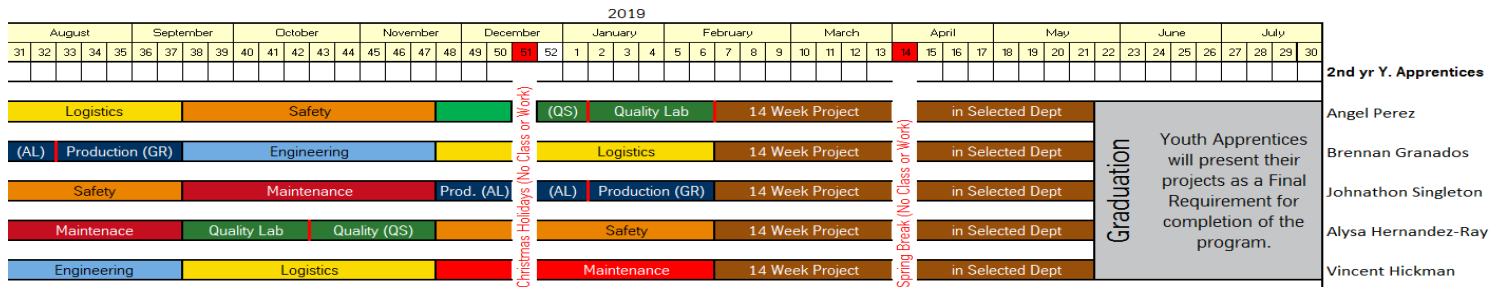
thyssenkrupp Schedule

- We looked at how everything in their lives at this time revolves around a schedule. School, sports, extra curricular activities and work.
- So we developed a schedule.
- While at thyssenkrupp the Youth Apprentices rotate through the different departments and processes. This gives them the opportunity to see the inner workings of all the departments.

Calendar Year 17/18




Calendar Year 18/19



Log Books

Once we determined a schedule we found that we needed specific tasks.

We developed a log book with lists of competencies for each rotation.


 thyssenkrupp Presta Danville
 Youth Apprenticeship Program

Youth Apprentice Log Book


Quality Assurance

Competency Name: Entry-Level Critical Work Functions		
Competency : Knowledge of Quality Department Tools and Tasks		
Student Name:		
Student Number:		
Activity Exposure: The expectations for level of competency in the items below is general understanding. Verification of competency is indicated by initials of the Mentor. Assessment is performed by the Youth Apprentice's Performance of each item to the satisfaction of the Mentor.		
Workplace Activities		Apprentice Performance
The Youth Apprentice Will Have the Following Training		
Time (hours)	Description	Contact
1	General Excel	Quality Assistant
1	Documentation: packing requirements, works instructions, control plan	Quality Engineer
1	Containment, disposition and sortig process	Quality Tech
1	Blueprint reading and GD&T	Quality Engineer
1	Dataair/ Part Traceability	
0.5	Root Cause Analysis	Jean Potter
4	Attribute Gaging	Crimson Tryon / Bill Garver
8	Lobe Checks	Steve Simpson / Jeremy Wright
40	CMM	Crimson Tryon / Bill Garver
4	Surface Gage / Profile Gage	Crimson Tryon / Bill Garver
2	Comparator	Crimson Tryon / Bill Garver
2	Manual Gages	Crimson Tryon / Bill Garver
Department Manager Signature:		
Advisor Signature:		

Document Created: 6/22/2014
Version: 3

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Document Review Date: 1/20/2016
Developed by Michael Barth


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Quality Assurance

Competency Name: Entry-Level Critical Work Functions		
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Workplace Activities		Apprentice Performance
The Youth Apprentice Is able to Perform the following Tasks.		
Time (hours)	Description	Contact
3	Gage Preventative Maintenance	Lab Personnel
	Lobe Checks	Lab Personnel
	Component Inspections	Lab Personnel
	Other projects as needed	Quality Engineer
The Youth Apprentice Is able to Demonstrate Knowledge of Quality Systems		
	General Knowledge of Excel spreadsheets and other Microsoft programs	
	Understand and demonstrate Knowledge of Documentation: packing requirements, work instructions, control plan	
	Understand and Demonstrate knowledge: containment, disposition and sorting process (part tagging procedure)	
	Understand the need for gauge calibration and preventative maintenance	
Department Manager Signature:		
Advisor Signature:		


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Each department developed a list of competencies for their department.



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 Youth Apprenticeship Program

Youth Apprentice Log Book

Engineering

Competency : Youth Apprentice is able to participate in the Manufacturing Engineering Department Youth Apprentice Development Program.	
Student Name:	
Student Number:	
Activity Exposure: The expectations for level of competency in the items below is general understanding. Verification of competency is indicated by initials of the Mentor. Assessment is performed by the Youth Apprentice's Performance of each item to the satisfaction of the Mentor.	
Workplace Activities	Apprentice Performance
Youth Apprentice is able to recall and explain Value stream mapping, rapid improvement, waste OEE (Overall Equipment Effectiveness), ROI (Return On Investment), Poka-Yoke.	
Youth Apprentice is able to recall and explain LED, pneumatic, electric, HVAC (Heating, Ventilating, Air Conditioning)	
Attend a S'QDC meeting.	
Youth Apprentice will attend a SMED (Single Minute Exchange of Dies) training with the Process Improvement Coordinator.	
Youth Apprentice is able to recall and explain SMED (Single Minute Exchange of Dies)	
Youth Apprentice shadowed each Tooling Technician and is able to recall, and explain these processes.	
<ul style="list-style-type: none"> Lobe Center Grinding Lathe & Tube Lines Assembly 	
Youth Apprentice is able to recall, explain and demonstrate how to rebuild knurling head using work instructions	
Youth Apprentice is able to recall and explain Continuous Improvement : Plan-Do-Check-Act	
Department Manager Signature:	
Advisor Signature:	

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Youth Apprentice Log Book

Engineering

Competency : Youth Apprentice will participate in the Manufacturing Engineering Department Youth Apprentice Development Program.	
Student Name:	
Student Number:	
Activity Exposure: The expectations for level of competency in the items below is general understanding. Verification of competency is indicated by initials of the Mentor. Assessment is performed by the Youth Apprentice's Performance of each item to the satisfaction of the Mentor.	
Workplace Activities	Apprentice Performance
Youth Apprentice is able to recall, explain and demonstrate how to rebuild knurling head using work instructions	
Youth Apprentice is able to recall and explain the general principles of Energy Efficiency. With Energy Efficiency Program Engineer	
With Energy Efficiency Program Engineer the Youth Apprentice is able to recall, explain:	
<ul style="list-style-type: none"> ISO 50001 Building Automation Systems in Energy Efficiency Management 	
Youth Apprentice is able to recall and explain Continuous Improvement : Plan-Do-Check-Act	
Youth Apprentice has completed th Basic Design (Meccano Kit) project.	
<ul style="list-style-type: none"> Objective Brainstorm Concept Sketches (CAD) Build and demonstrate function of design 	
Youth Apprentice is able to recall and explain Process and Mechanical Improvement.	
Department Manager Signature:	
Advisor Signature:	

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Electronic Log Book

	A	B	C	D
1		Week 48 - 6		
2				
3	Date	Task / Comments	Mentor	
4	12/2/2016	started safety today. Organized papers for george.	george	
5	12/5/2016	George got fired, jessica and I ran out tags for lines.	jessica	
6				
7				
8	1/11/2017	Jackson and I worked on our LOTO project. Labeled and printed documents.	renea	
9	Date	Task / Comments	Mentor	Hours
10	1/18/2017	Continued on our lock out tag out project. Ran into a few standstills, including needing to include the laminated maps and how to organize the documents. Jackson and I need to work on communication.	R. Hacker	12:30-3:00
11	1/23/2017	Today I replaced documents on the safety boards around the plant. Then I put privacy sheets up for a room made for biggest loser weigh ins. Talked to tom about college and then went home.	J. Price	12:30-3:00
12	1/25/2017	Talked to Micheal and then went to jessica. I re hung up the paper for health and wellness clinic,	Price	12:30-3:00
13	2/6/2017	Practiced our tours with mike.	Mike	
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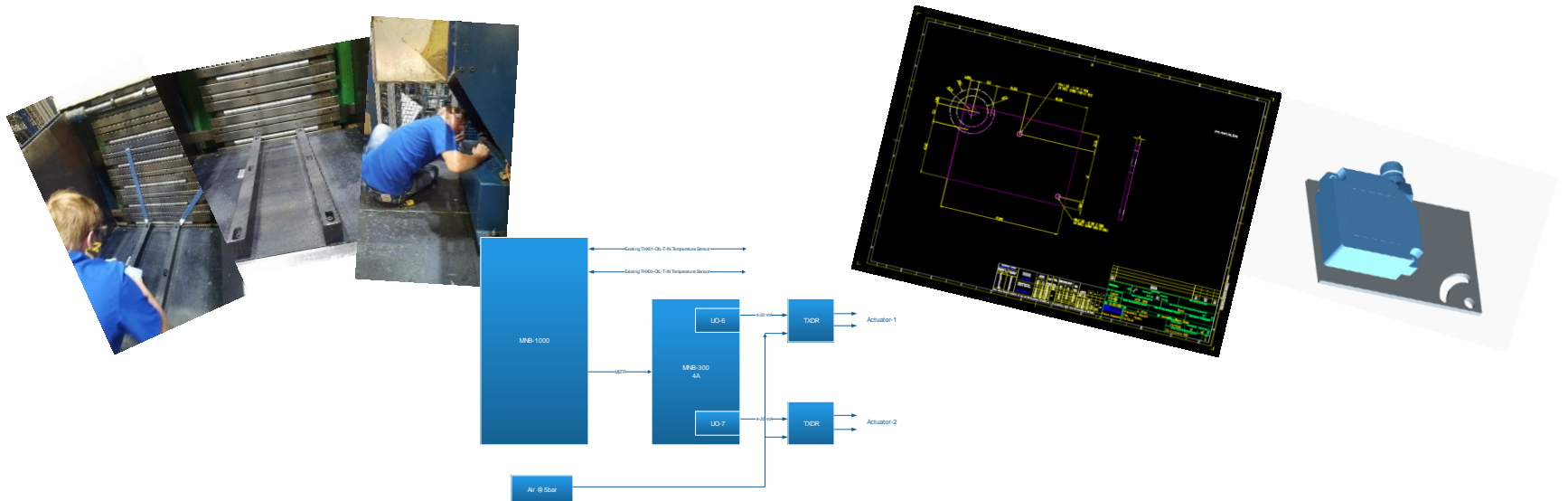
Keep A Log For Review



14 Week Project and Presentation

The Apprentices must spend 14 weeks on a value added project that has a specific ROI.

The Apprentices must give a final presentation to the leadership team with an update on their project and a recap on their experience in the apprenticeship.



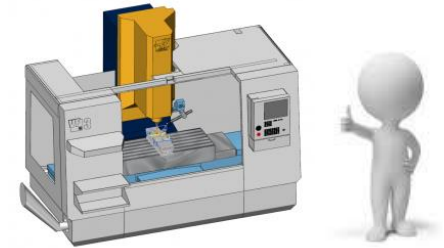


High School

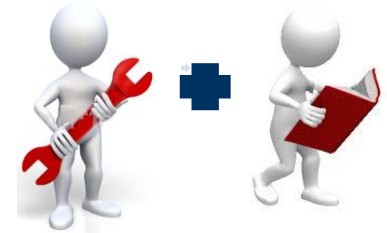
Thyssenkrupp / DACC NIMS Program



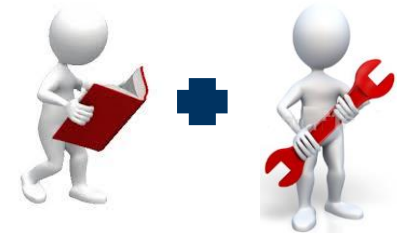
Fast Track Operator



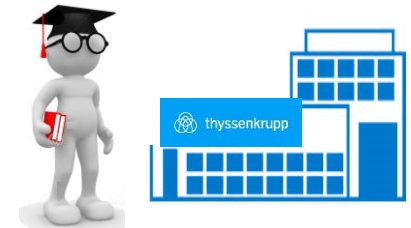
Tuition Reimbursement



Full Time Student / Intern



Return with Degree
Become Full Time
Employee



DOL Registered Mechatronics Apprenticeship

- The idea started in 2014.
- Need for qualified technicians.
 - Small pool of qualified candidates in Vermilion County.
- We wanted to have a program that had not only a certificate from a community college but along with that came a US DOL apprenticeship certificate.
- Turned to our local community college (DACC).
- Developed a training plan.
- Mapped out what an apprenticeship would look like for us.
- Turned to the US DOL Office of Apprenticeship for guidance on developing the apprenticeship.
- Proposed our idea to leadership to get their support.
 - Leadership agreed on the need and supported the idea of an apprenticeship.
- We applied to the DOL.
- In 2015 we received our certification and started our apprenticeship.



The Apprenticeship has Evolved

- Our Registered Apprenticeship started as a 4 year 8000 hour apprenticeship.
 - It required outside instruction and on the job both throughout the 4 years.
- In 2017 we changed the way the apprenticeship works
- We developed a 6000 hour 3 year apprenticeship.
 - It has all outside instruction in the first year and on the job training years 2 and 3
 - The apprentices work full time all three years.
- In 2017 we had a graduate from the Registered Apprenticeship.
 - Nick Stine is our first to complete his apprenticeship.



Support for the Program

- School support
 - Follow up with schools to keep counselors involved
- Community support
 - Vermilion Advantage
 - Vicki Haugen
- State support
- WIOA
 - Johnathon Jett
- US DOL Office of Apprenticeship –
 - Rhonda Klinman
 - Bruce Hallam



Questions?

Michael Barth

Apprenticeship Advisor / Employee Development Specialist

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