Grand Rapids Community College

Course Cover Sheet

M-CAM Training Area:
☐CNC/Machining ☐Multi-Skilled/Mechatronics ☒Production Operation ☐Welding/Fabrications

Program(s): Manufacturing Readiness

Course: Manufacturing Readiness

Course Description: 1-week, full-time, non-credit certificate program

Date Created: 2015

Faculty Developer(s)/Instructional Designers(s): Dan Keyes, Sara Yob, Steven Ray

Employer/Industry Partner: Discover Manufacturing Employers, including NN Inc, Dewys Manufacturing, and Wolverine Coil & Spring.

College Contact: David Lovell, M-CAM Program Manager

Phone: 616-234-3168

Email: davidlovell@grcc.edu

Additional Information/Comments:

Program was developed to satisfy an employer needs communicated to GRCC by members of the M-CAM Steering committee, Discover Manufacturing. Employers were looking for a short-term training program that would produce qualified graduates to fill entry-level manufacturing positions in as quick a time frame as possible. Basic learning outcomes were communicated to GRCC by Discover Manufacturing employers.

This workforce solution was funded by a grant awarded by the U.S. Department of Labor's Employment and Training Administration. The solution was created by the grantee and does not necessarily reflect the official position of the U.S. Department of Labor. The Department of Labor makes no guarantees, warrantees, or assurances of any kind, express or implied, with respect to such information, including any information on linked sites and including, but not limited to, accuracy of the information or its completeness, timeliness, usefulness, adequacy, continued availability, or ownership.

Manufacturing Readiness September 19-23+, 2016

Rev history hidden. Rev 5/13/16, 5/18/16

Sara | David & John | Steven | Revisions & Questions | 5/18/16 Revisions | Dan

	Day 1				Day 2				Day 3				Day 4				Day 5				Day 6	
Time	Content	Instructor[7]	Potential Materials	Learning Outcomes	Content	Instructor	Potential Materials	Learning Outcomes	Content	Instructor	6	Learning Outcomes	Content	Instructor	Potential Materials	Learning Outcomes	Content	Instructor	Potential Materials	Learning Outcomes		Time
7:30 - 8:45	Welcome by Julie or Erica Learning Outcomes Introductions Expectations (Ericas letter and attendance) Ground rules	SY	ManuPrin		Ladder game assembly or MI Banjo, quality and continuous improvement for **process instructions and quality**	DK	ManuPrin	12-13, 14-16, 1-5, 31	Print Reading[5] (Bird House)	SY	ManuPrin Adv Mfg	17-19, 31	Mrecision measuring (calipers), proper use, care, calibration In/mm conversion	SY	ManuPrin Adv Mfg	6-11, 31	Measuring with tape measure (ruler) - fraction/dec conversion	SR	ManuPrin	1-6, 12-16, 23-24, 31	Interview practice w/ David & John	7:30 - 8:45
8:45 - 8:55	Break				Break				Break				Break				Break					8:45 - 8:55
8:55 -10:10	Flipchart -Vocab Terms, W Mi mfg, tour process video, discussion and examples	SY	Manf Camp Lean PDCA w note.ppt	3-5, 7, 13, 15, 16, 29-31	**Behavior** Plant Tour[4] (Company TBD) Leave (Location ?) at 9:45	DK	Transportation	20-24 29-31 (1-19)	finish Print Reading[5] if needed, problem solving model	SY	ManuPrin Adv Mfg	17-19, 12-13, 31	Print reading and measurement applied "Sarah Part", calipers and mics	SY	ManuPrin Adv Mfg	6-11, 17-19 31	Measuring with tape measure (ruler) - fraction/dec conversion (If Time: Process simulation again, for speed and quality)	SR	ManuPrin	1-6, 12-16, 23-24, 31	Interview practice w/ David & John Interviews w/companies	8:55 -10:10
10:10 - 10:20	break								Break				Break				Break					10:10 - 10:20
10:20 -11:30	Back-to-back, team effectiveness	SY	ppt above and handouts and https://www.youtube.com/watch?v=43LgedAH-Kk	1-5, 13, 15, 16, 31					Problem Solving Model & Team	SY	manuprin	1-5, 12, 16	disc	SY	disc preview and binder handouts	1-5	Wrap-up Math post test What did you learn Learning Objectives	SR	Manuprin	6 (1-31)	Interviews w/companies	10:20 -11:30
11:30 - Noon	Lunch	Lunch	Lunch	Lunch	Lunch	Lunch	Lunch	Lunch	Lunch	Lunch	Lunch	Lunch	Lunch	Lunch	Lunch	Lunch	Lunch				Lunch	11:30 - Noon
Noon-1:15	Math - Pre-test, start math1	SR	ManuPrin	6	Ladder game or MI Banjo assembly, quality and continuous improvement	DK	Manf Camp Lean PDCA w note.ppt	12-13, 14-16, 1-5, 31	Math	SR	Manuprin	6, 11	more math	SR	in binder	6, 11	Interview Practice Finalize Resume Workplace skills	John & David	John & David	20-28	Interviews w/companies	Noon-1:15
1:15 -1:25	Break				Break				Break				Break				Break					1:15 -1:25
1:25 - 2:00																						1:25 - 2:00
2:00 - 2:40	Math1 and what **behavior/dress for tour**	SR	ManuPrin	6, 20-23	In computer lab Resume - writing resume on-line	John & David	John & David	24-25	More Math	SR	Manuprin math in binder	6, 11	Resume - revise resume on-line Interview skills Workplace skills	David & John	David & John	20-28	Interview Practice Finalize Resume Workplace skills	John & David	John & David	20-28		2:00 - 2:40
2:40 - 2:50	Break				Break				Break				Break				Break					2:40 - 2:50
2:50 - 4:00	Resume - template, info needed, action verbs Workplace skills	David & John	David & John	20-21 24-25	Resume - writing resume on-line Interview skills Workplace skills[2]	John & David	John & David	20-27 (1-4) draft resume	Employability/ Workplace Skills	John & David	John & David	20-28	Resume - revise resume on-line Interview skills Workplace skills	David & John	David & John	20-28	Interview Practice Finalize Resume Workplace skills	John & David	John & David	20-28		2:50 - 4:00

[1] Math includes: adding, subtracting, multiplying, dividing, decimals to fractions, easy story problems [Learning Objective 6]

[2] David & John review all resumes and edit, ready for Day 3

[3] Tracking Inventory Incorporates: working in teams, reading instructions, locating information, math & accuracy, attention to detail, quality (inspection, result, act), workplace organization [Learning Objectives: 1-6, 24, 31. Small modifications, e.g., questions asked and answered, could be made to include Learning Objective: 14] . Mentor notes can be used for standardized assessment. Can be done as a individual or as we would use it, in teams.

[4] For "modules" conducted after plant tour, refer to specifics in tour as much as possible

[5] Approach module as teaching/re-inforcing team, interpersonal interaction, and communication and using these skills while learning a specific "technical" skill [Learning Objectives: 1-4]. Also, as much as possible, the module should incorporate reading and following instructions (vary look and format) and locating information [Learning Objective 5].

[6] Focus: behavior at work, behavior in a group. Analysis: Behavior, Dimensions (tendencies, wants, fears, strategies/act & re-act), Bounded Rationality (making best decision w/information available).

Sara and Steven, some relevant e-files for content can be found at S:\School of Workforce Development\Training Solutions\Resource Center\Manufacturing Readiness; note there are 3 short-cuts to other larger files. Sara and Steven will be "cutting and pasting" materials next week (2/23-27/15)

Material locations.

Ladder Game materials: ????
ams materials: S:\School of Workforce Development\Training Solutions\Non-Credit Course Offerings\2013 2014 CEPD Offerings\advanced mfg series
manuprin shopmath: S:\School of Workforce Development\Training Solutions\Non-Credit Course Offerings\2013 2014 CEPD Offerings\advanced mfg series
bp birdhouses: Sara's desk, plastic drawer bins on desk top
parts and prints to measure or read: Sara's desk, plastic drawer bins on desk top
gages for measuring: locked steel cabinet in room 101, bottom shelf

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Manufacturing Readiness Program Learning Outcomes

PILOT (40 hour)

Note: Learning outcomes are integrated into active learning situations and assessed via student led demonstration of skills attainment.

Learning Outcomes:

Communication/Teamwork:

1. Identify interpersonal characteristics of a team player
2. Demonstrate the characteristics of a team player
3. Apply group dynamic principles to manufacturing situations.
4. Select appropriate communication methods
5. Interpret and clarify directions prepared by others.

Math and Measurement:

6. Apply basic math functions to solve problems.
7. Create and interpret basic graphs and charts commonly used in manufacturing.
8. Determine the role of measurement in manufacturing
9. Demonstrate the proper general measurement techniques
10. Explain calibration requirements of various measuring instruments.
11. Convert between US and metric measurement systems.

Problem Solving:

12. Explain the value of applying a problem solving system.
13. Develop a system of problem solving.

Quality Assurance:

14. Explain the effect of quality on profit.
15. Identify the effects of continuous quality improvement
16. Demonstrate the ability to apply continuous quality improvement to the manufacturing process.

Blueprint Reading:

17. Define basic blueprint terminology
18. Identify general note symbols
19. Locate notes on a print.

Workplace Skills:

20. Demonstrate consistently punctual arrival.
21. Demonstrate enthusiasm and confidence about work and learning new tasks.
22. Demonstrate appropriate dress and hygiene for successful employment
23. Demonstrate the ability to act in a polite and respectful way towards co-workers.
24. Plan and organize work.

Manufacturing Readiness Program

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March 2, 2016

Student
622 Godfrey Ave SW
Grand Rapids, MI 49503

Dear Student,

Congratulations! You are currently enrolled in GRCC's Manufacturing Readiness Program. This program is designed to prepare you for entry level work in West Michigan manufacturing! We are excited by your interest in the Manufacturing industry and look forward to helping you achieve your goals. This opportunity would not exist without the vision of West Michigan Manufacturers. These manufacturers may be your future employer and they will be participating by providing the class with onsite tours as well as interviewing for jobs in their companies. You will have the opportunity to interview with at least two of our leading employers supporting this program. The manufacturing interviews will be held on March 15, 2016 at the MI Works Franklin Service Center. from 8 am – 1 pm. Please make sure you are available to attend!

In this program you are expected to:

1. Attend class on time daily and stay for the entire class time
2. Actively participate in class discussion and projects
3. Dress appropriately for class (long pants and closed toed shoes)
4. Participate in interviews with industry employers
5. Bring your own lunch daily

In order to prepare for your interview with employers, please know you may be asked to take a drug test if employed. Even though we do our best to find felony friendly employers, please note that past felony convictions could effect your employment opportunities.

Please contact me if you decided not to attend the program or have any questions (ebrown@grcc.edu or 616-234-3060 or 616-234-3800).

This program along with your hard work and dedication, will provide you the skills to be ready for the manufacturing work industry. Classes will be held Monday – Friday, March 7-11, 7:30 a.m. to 4 p.m. at the MI Works Franklin Service Center – 121 Franklin St SE. We look forward to meeting you and working with you.

Sincerely,

Erica Brown
Program Manager, TAACCCT MI Coalition for Advanced Manufacturing

GRCC GREAT PAST. BRIGHT FUTURE.

Manufacturing Readiness Program Learning Outcomes

Outcome:	Learning Method	Complete(Y/N)
Communication/Teamwork:	X	X
1. Identify interpersonal characteristics of a team player		
2. Demonstrate the characteristics of a team player		
3. Apply group dynamic principles to manufacturing situations.		
4. Select appropriate communication methods		
5. Interpret and clarify directions prepared by others.		
Math and Measurement:	X	X
6. Apply basic math functions to solve problems.		
7. Create and interpret basic graphs and charts commonly used in manufacturing.		
8. Determine the role of measurement in manufacturing		
9. Demonstrate the proper general measurement techniques		
10. Explain calibration requirements of various measuring instruments.		
11. Convert between US and metric measurement systems.		
Problem Solving:	X	X
12. Explain the value of applying a problem solving system.		
13. Develop a system of problem solving.		
Quality Assurance:	X	X
14. Explain the effect of quality on profit.		
15. Identify the effects of continuous quality improvement		
16. Demonstrate the ability to apply continuous quality improvement to the manufacturing process.		
Blueprint Reading:	X	X
17. Define basic blueprint terminology		
18. Identify general note symbols		
19. Locate notes on a print.		
Workplace Skills:	X	X
20. Demonstrate consistently punctual arrival.		
21. Demonstrate enthusiasm and confidence about work and learning new tasks.		
22. Demonstrate appropriate dress and hygiene for successful employment		
23. Demonstrate the ability to act in a polite and respectful way towards co-workers.		
24. Plan and organize work.		
Job Readiness Skills:	X	X
25. Create an appropriate manufacturing focused resume.		
26. Demonstrate ability to explain skills and talents during job interviews.		
27. Demonstrate appropriate interview skills and responses.		
28. Demonstrate appropriate post interview follow-up skills.		
Manufacturing Overview	X	X
29. Explain the different types of manufacturing happening in west Michigan.		
30. Understand what manufacturing's impact is (locally, regionally, nationally).		
31. Understand at least 20 basic manufacturing terms.		

TEAM ROLES AND RESPONSIBILITIES

LEADER

- Focuses on the group's task
- Keeps the team on track
- Helps the team to identify goals and make plans to reach those goals
- Makes sure team tasks are done well and in a timely manner

FACILITATOR

- Focuses on the team's process
- Make sure that "Code of Conduct" is followed
- Links ideas of one team member to another
- Promotes the involvement of all team members

Recorder/Scribe

- Records the discussion and results of the team
- Prepares and distributes minutes to all team members
- Keeps historical record of minutes
- Keeps track of time

Team Members

- Participates honestly and courteously
- Is open minded and non-critical
- Listens well and is open to new ideas
- Is creative and supportive, and has a positive attitude
- Completes assigned tasks and meets commitments

KEYS FOR RELATING TO D — DOMINANCE

HO 9-2

High D's want others to be direct, straightforward, and open to their need for results.

Be sure to

- make communication brief and to the point
- respect their need for autonomy
- be clear about rules and expectations
- let them initiate
- show your competence
- stick to the topic
- show independence
- eliminate time-wasters

Be prepared for

- blunt, demanding approaches
- lack of empathy
- lack of sensitivity
- little social interaction

KEYS FOR RELATING TO i — INFLUENCE

HO 9-3

High i's want others to be friendly, emotionally honest, and to recognize the high i's contributions.

Be sure to

- approach them informally
- be relaxed and sociable
- let them verbalize thoughts and feelings
- keep the conversation light
- provide written details
- give public recognition for individual accomplishments
- use humor

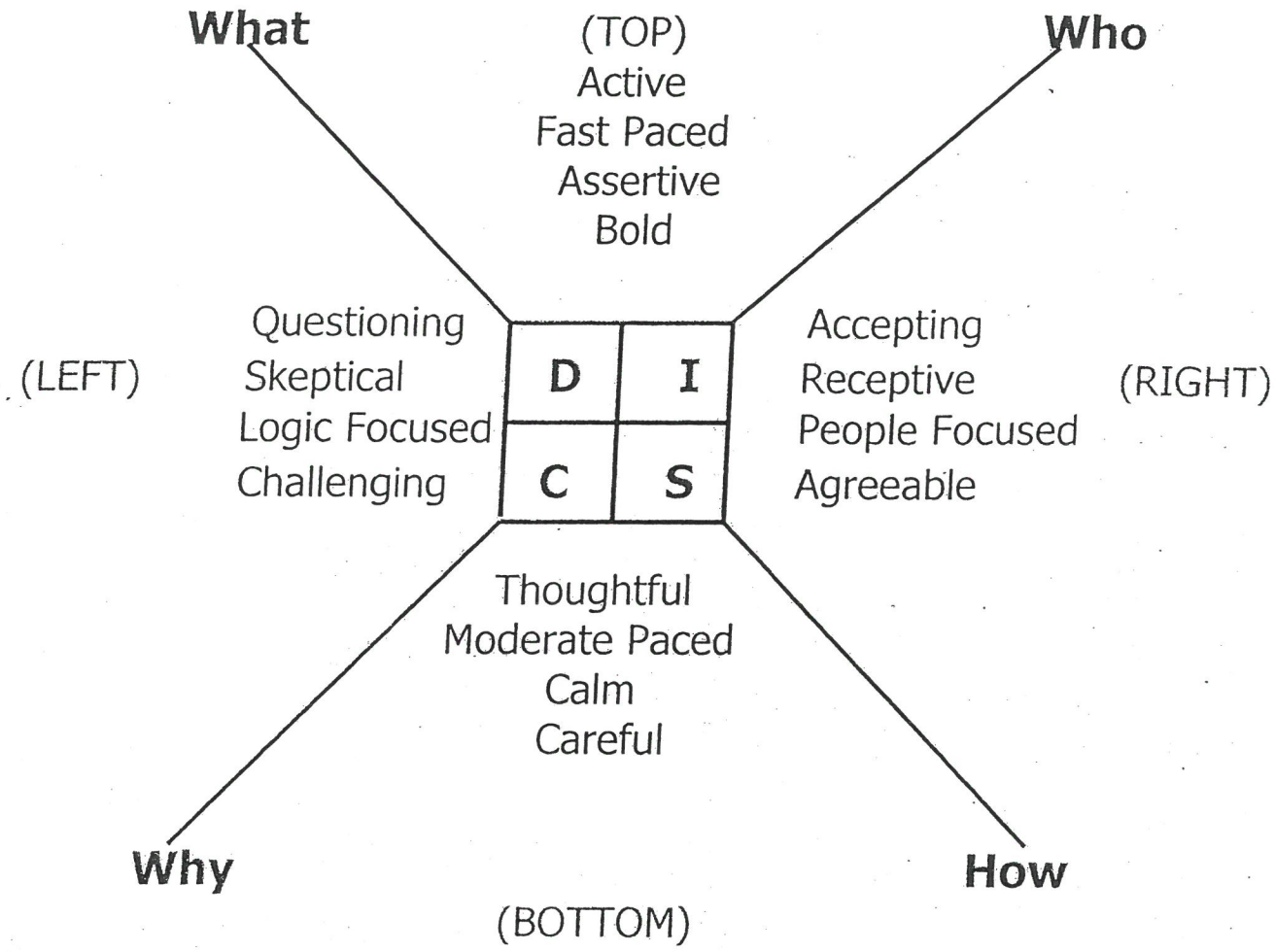
Be prepared for

- attempts to persuade or influence others
- a need for the limelight
- overestimation of self and others
- overselling ideas
- vulnerability to perceived rejection

Notes:

TRAINING DIRECT, LLC

Reading DiSC® Behavior



Quick Tips For Reading Behavior

Reading people is a skill that can be learned by observing behaviors that people exhibit. Using this cue sheet, look from top to bottom to determine which predominant behaviors you observe. This will help you isolate whether D & i behavior are most prevalent or if C & S behaviors are more obvious.

Now that you have narrowed the behavior to one of two choices, look at the list of behaviors on both the left and right sides to observe which are most predominantly being exhibited. Then you can isolate which one of the four possible behaviors you are observing. This quick guide can help you get started on developing your people reading skills inside and outside of work!

Note: that all information regarding behavioral styles needs to be personalized to the individual. This helps to avoid stereotyping. The key is to use this formation to be more self aware, then learn about others and communicate with them to learn how you can be most effective with them.

Website: RosemaryWard.com

GOAL: A STATEMENT OF PLANNED OUTCOME WHICH HELPS TO ACHIEVE YOUR MISSION

SMART GOALS ARE:

Specific
Measurable
Achievable
Realistic
Time frame

IF ALL CRITERIA ARE MET, THE GOAL IS

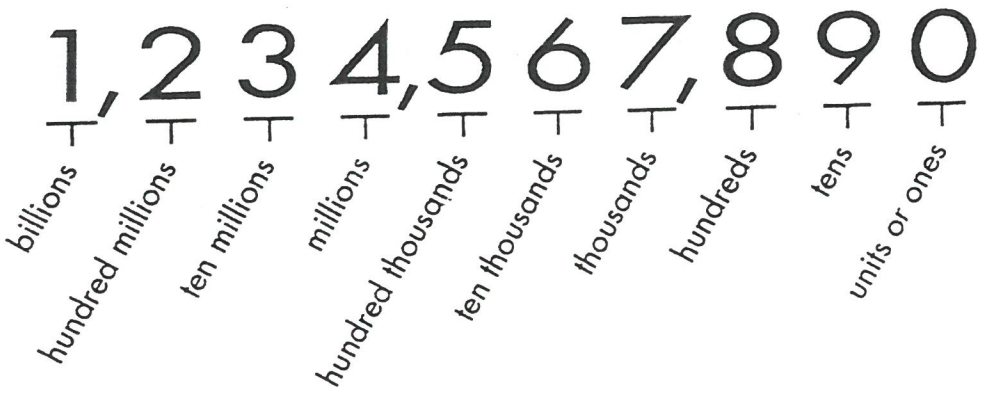
SMART

SHOP MATH SECTION

Whole numbers are those which are represented by **digits (0, 1, 2, 3, 4, 5, 6, 7, 8, 9)**.

For example, the number 350 has 3 digits, even though the last one has no value.

The placement of the digit with respect to others is called the **place value** of the digit. This placement determines the value of the digit in the number, as the example shows below:



EXERCISE #1

Please give the value of each underlined digit:

1. 4325 _____
2. 59 _____
3. 2544 _____
4. 9847 _____
5. 328 _____
6. 5947 _____
7. 16 _____
8. 541 _____
9. 78,459 _____
10. 69 _____
11. 362,411 _____
12. 16,045 _____

EXERCISE #2

Solve the following problems:

1. What is the sum of 25 and 2014? _____
2. Find the product of 254 and 215. _____
3. How much is 4587 times 168? _____
4. Multiply the sum of 84 and 451 by 8. _____
5. 56 goes into 7616 how many times? _____
6. Divide the difference between 4286 and 263 by 3. _____
7. The total of 7958 and 2856 is how much greater than their difference?

   _____
8. 1836 is how many times greater than 51? _____
9. What is the quotient of 95,202 divided by 258? _____
10. 16,518 is how much larger than 2015? _____
11. What is the quotient of 1245 divided by 15? _____
12. The product of 257 and 295 is how much less than 100,000?

    _____
13. What is the product of 2587 x 3215? _____
14. What do you get when you divide 108,960 by 96? _____
15. How much less is 164,649 than 3,462,811? _____
16. What is the sum of 23; 2456; 499 and 104,004? _____

EXERCISE #3

Solve the following problems:

1. Calculate the average of 18,245; 3621; 286 and 3488. _____

2. What is the range of 2548, 4568, 135 and 1005? _____

3. What is the median of 36, 45, 21, 13 and 2? _____

4. What is the mode of 26, 16, 45, 26, 56 and 25? _____

5. If a salesman sold three shirts at $4.75 each, seven shirts at $6.45 each, and five shirts at $8.70 each, what is the average price of shirts he sold? _____

6. A press operator took the following measurements on a part he was running: 6 inches, 2 inches, 5 inches and 3 inches. What is the range of the measurements he took? _____

7. As the assembly operator examined the chart from the previous shift, she saw these numbers: 6, 5, 8, 9, 6, 4, 6, 5, 7. What is the mode of these numbers? _____

8. If an employee missed 4 days in April, 3 days in May, 1 day in June and 0 days in July, what was the average number of days he missed per month over this period? _____

9. If Jim makes 18 parts per hour, Jack makes 32 parts per hour, and Joe makes 25 parts per hour, what is the average number of parts made by the group per hour? _____

10. There are 20 boxes of candy in a case. If 6 boxes sold for $.95 each, and 12 boxes sold for $1.10 each, what is the cost of each remaining box if the total amount collected for the case is $20.00?

    _____

11. Jane works in a shop that uses flex-time. Her work week consists of 40 hours. She worked 7 hours on Monday, 8 hours on Tuesday, 10 hours on Wednesday and 9 hours on Thursday. How many hours does she need to work on Friday to get a full week's paycheck?

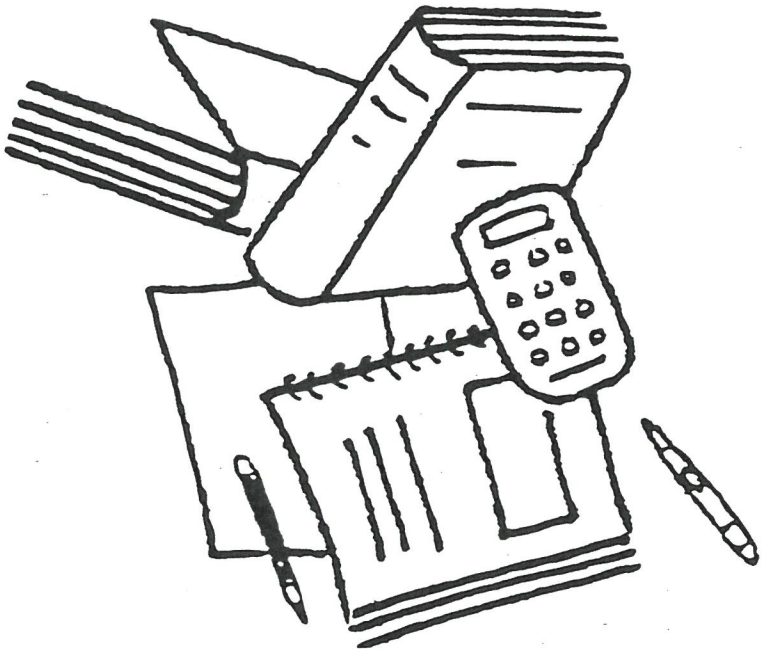
    _____

12. There are 300 employees that work in the factory at the ABC Company. Each employee makes $8.00 per hour. If each employee wastes 1 hour per day how much waste is the company paying for in the 220 work days that make up a standard year? _____

EXERCISE #4

Round off each number to the place value indicated:

1. 5616 to the nearest ten. _____
2. 615 to the nearest hundred. _____
3. 21,561 to the nearest ten-thousand. _____
4. 2164 to the nearest hundred. _____
5. 45,879 to the nearest thousand. _____
6. 215 to the nearest ten. _____
7. 498,612 to the nearest thousand. _____
8. 567 to the nearest hundred. _____



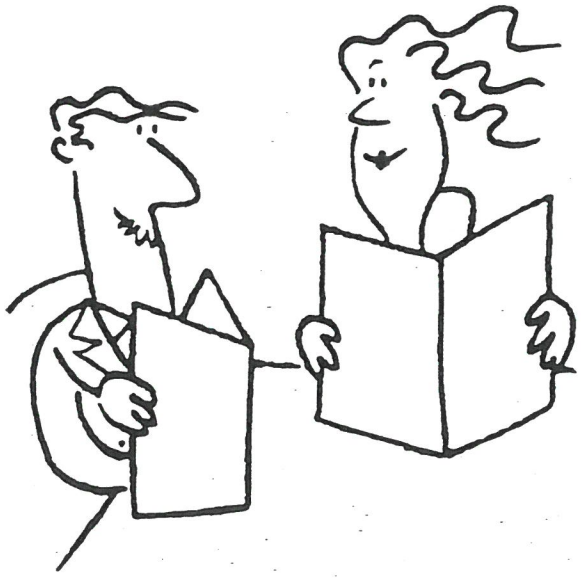
EXERCISE #5

Express these decimals in word form:

1. .09 _____
2. 1.0625 _____
3. .2864 _____
4. 2.05 _____
5. 35.20 _____
6. .020 _____
7. .0061 _____
8. 1.0101 _____

Express these numbers in decimal form:

1. Five and three tenths _____
2. Sixteen thousandths _____
3. Eight thousand and forty-five thousandths _____
4. Two hundred one and ten hundredths _____



ADDING DECIMALS

As in adding whole numbers, you must line up the place values of the numbers you are adding. With decimals, you may use the decimal point as a guide to lining up the place values. The decimal point in the answer must line up with the decimal point in the problem to assure the correct answer. With the place value (or the decimal points) lined up you can then do the basic math to arrive at the answer. The decimal point is the mark used to separate the whole numbers from the decimals.

Example #1: Add .24 and .49

$$\begin{array}{r} .24 \\ +\ .49 \\ \hline .73 \end{array}$$

Example #2: What is the sum of .68, 2.0566, .010 and 10?

.68	has the same value as	.6800
2.0566	has the same value as	2.0566
.010	has the same value as	.0100
10	has the same value as	+ 10.0000
		12.7466

As long as the decimal points are in line, the place values will also be lined up.

EXERCISE #7

Solve the following addition problems:

1. 45 + .23 = _____
2. 5.302 + .020 = _____
3. 30.251 + .0025 = _____
4. .4501 + 1 = _____
5. .05 + .23665 = _____
6. 213.02 + .0001 = _____
7. 232.010 + .1 = _____
8. 15.005 + 6 = _____

EXERCISE #8

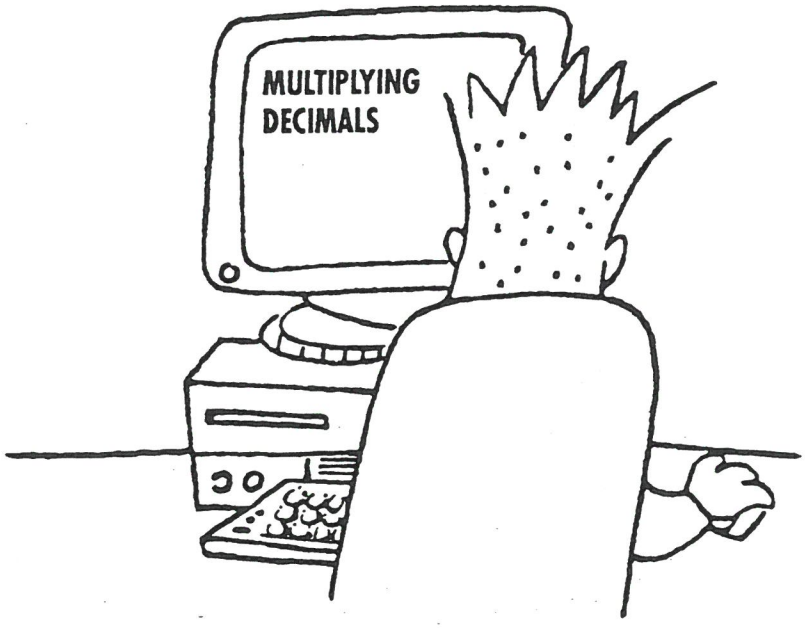
Solve the following subtraction problems:

1. What is the difference between .46 and .0125? _____
2. How much more is $35.25 than $25.31? _____
3. Take .01254 from .152 _____
4. Find the difference between 23.545 and 2.1546 _____
5. Take .02587 from .15 _____
6. How much larger is 300.518 than 25.49? _____
7. The difference between .00518 and .01 is? _____
8. How much smaller is .0029 than .23? _____

EXERCISE #9

Solve the following multiplication problems:

1. .5 x .8 = _____
2. .215 x 5.002 = _____
3. .026 x 4.021 = _____
4. .003 x 7 = _____
5. .065 x .120 = _____
6. 568 x .001 = _____
7. 2154 x .012 = _____
8. .8794 x .021 = _____



EXERCISE #10

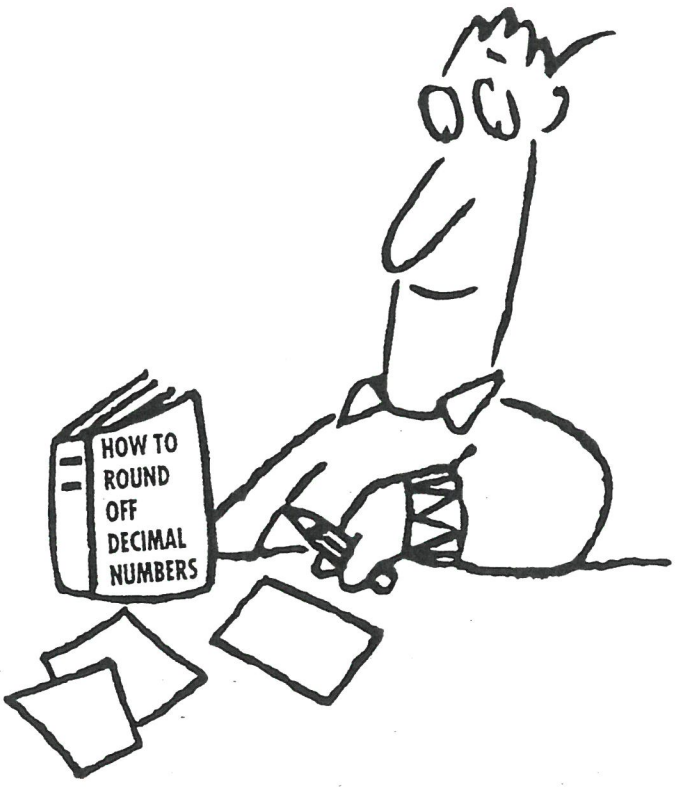
Solve the following division problems:

1. $96 \div .12 =$ _____
2. $3.69 \div .003 =$ _____
3. Divide 28.8 by 48 _____
4. Take .8 into 10.12 _____
5. $.015\overline{)126}$ _____
6. $1.002 \div .02 =$ _____
7. Divide 13.13 by .04 _____
8. $51.84 \div .04 =$ _____
9. Take .007 into 4.2 _____
10. $.08\overline{).560}$ _____
11. $111.25 \div .125 =$ _____
12. $1.436 \div .006 =$ _____
13. $13.2048 \div .56 =$ _____
14. $4.36\overline{)246.34}$ _____
15. Divide 139.7 by 2.2 _____
16. $194.025 \div 7.761 =$ _____

EXERCISE #11

Round off each number to the place value indicated:

1. .2154 to the nearest thousandth _____
2. .5004 to the nearest tenth _____
3. .01536 to the nearest hundredth _____
4. 1.02584 to the nearest ten-thousandth _____
5. 25.458 to the nearest tenth _____
6. .1101 to the nearest hundredth _____
7. 6.5673 to the nearest thousandth _____
8. 12.0262 to the nearest thousandth _____



EXERCISE #12

Find the decimal equivalents of the following fractions:

1. 13/16 = _____
2. 3/8 = _____
3. 27/64 = _____
4. 29/32 = _____
5. 3/4 = _____
6. 53/64 = _____
7. 5/64 = _____
8. 6/16 = _____
9. 23/32 = _____
10. 63/64 = _____
11. 19/32 = _____
12. 5/8 = _____

EXERCISE #13

Find the fractional equivalents for the following decimals:

1. .40625 = _____
2. .90625 = _____
3. .1250 = _____
4. .4375 = _____
5. .8750 = _____
6. .59375 = _____
7. .28125 = _____
8. .8125 = _____
9. .7500 = _____
10. .859375 = _____
11. .09375 = _____
12. 1.000 = _____

EXERCISE #14

Find the millimeter equivalents for the following fractions:

1. 1/2 = _____
2. 59/64 = _____
3. 5/8 = _____
4. 27/32 = _____
5. 5/32 = _____
6. 13/16 = _____
7. 61/64= _____
8. 45/64 = _____
9. 9/16 = _____
10. 1/64 = _____
11. 19/64 = _____
12. 31/32 = _____

Instruction Sheet For Dial Calipers

Grizzly Dial Calipers feature 0.001" resolution, a 1½" easy-to-read dial and precision ground stainless steel construction. Using this tool will allow you to measure internal, external and depth quickly and precisely.

Please read the instructions below to maximize the effectiveness of this tool. If you need additional help with any of these instructions, please contact our Customer Service Department at 570-546-9663 or by internet at techsupport@grizzly.com.

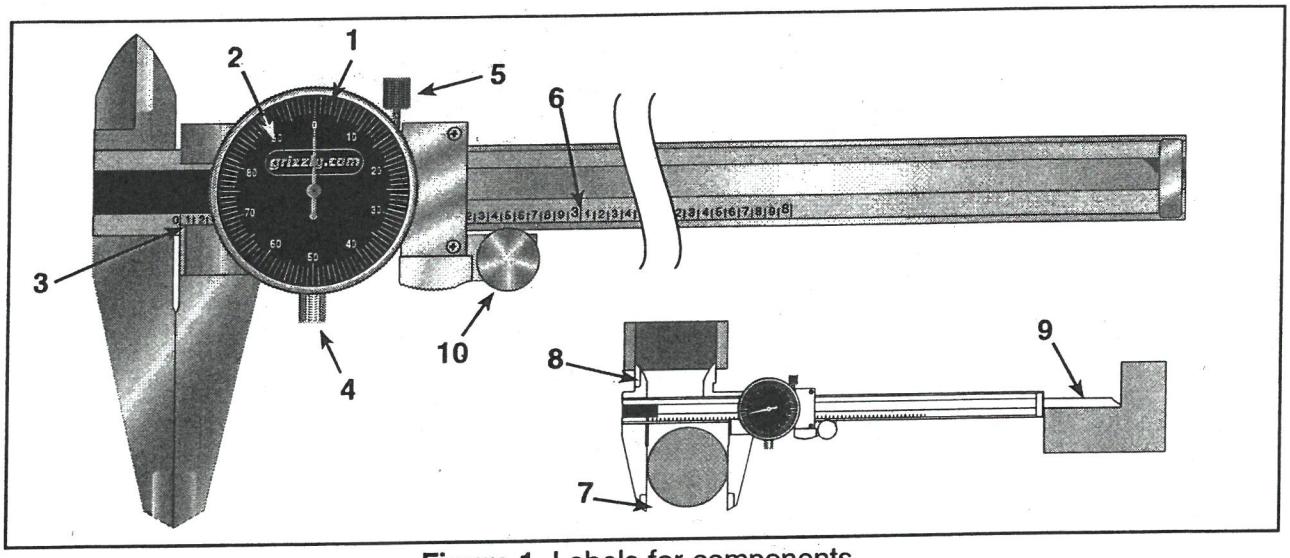


Figure 1. Labels for components.

Listed below are the dial caliper components. Match the description with the corresponding part number in the illustration above.

1. The distance between the **White Lines** equals 0.001" (one thousandths of an inch).

2. The **Dial Numbers** represent 0.010" (ten thousandths of an inch).

3. Each number on the **Revolution Scale** represents one full rotation of the needle and is equal to 0.100" (one hundred thousandths or 1/10 of an inch). The jaw index indicates which number is read. See **Figure 2** for how the measurement is read.

4. The **Dial Lock** secures the dial after zero is set. Clean the jaw faces of any dirt or dust and close the jaws together. If the hand is not on "0" then you can turn the dial to align it to "0". Once aligned, lock down the bezel with the dial lock (4).

5. The **Caliper Lock** secures the dial to the body, maintaining a measurement.

6. The **Inch Markers** denote each full inch of measurement.

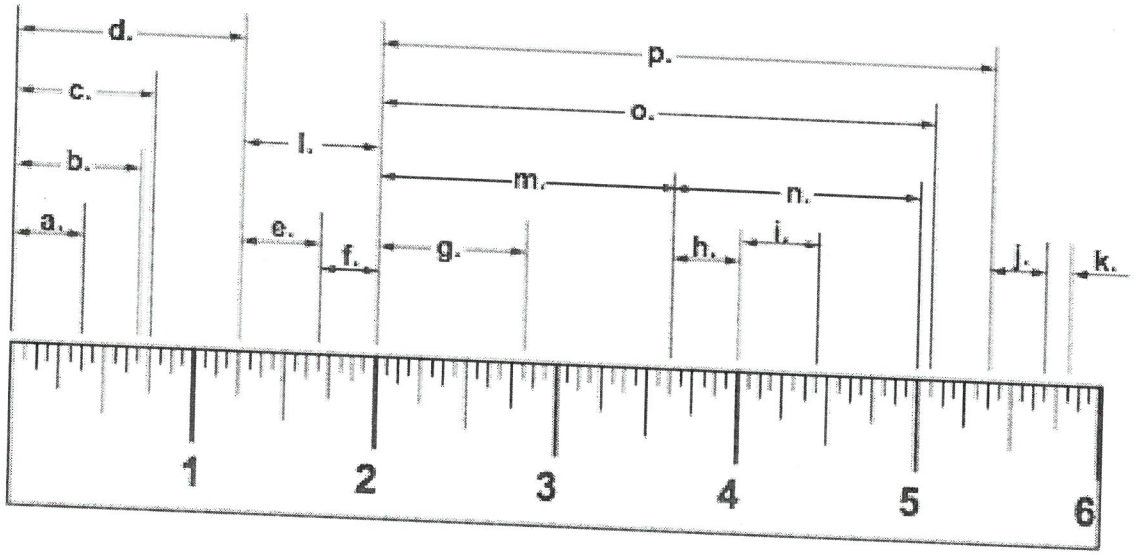
7. The **External Caliper Jaws** are used for external measurements.

8. The **Internal Jaws** are used for internal measurements.

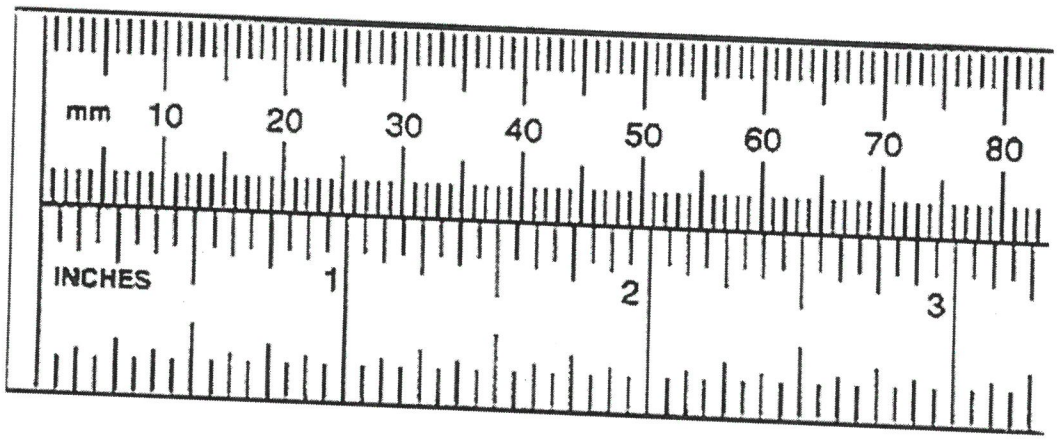
9. The **Depth Blade** is used to gauge depth.

10. The **Thumbwheel** is used to move the dial assembly along the caliper body.

Measurements – Ruler and Mics Worksheet

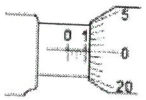


	inches
a	3/8"
b	
c	
d	
e	
f	
g	
h	
m	
p	
k	

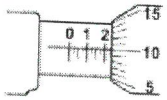


inches	mm
1"	25.4
1 ½"	
3"	
3/16"	
1 ½"	
5/8"	

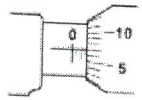
Micrometer – inches



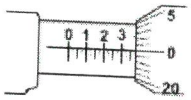
a. Reading _____



b. Reading _____

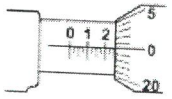


c. Reading _____

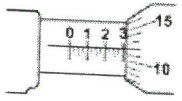


d. Reading _____

e. Reading _____

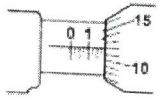


f. Reading _____



g. Reading _____

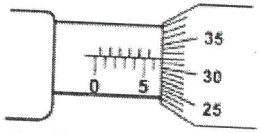
h. Reading _____



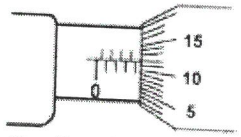
i. Reading _____

j. Reading _____

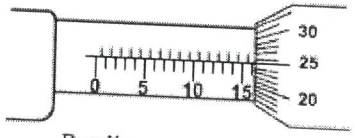
Micrometer - mm



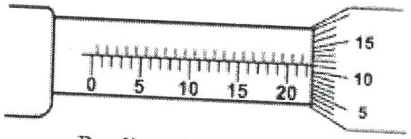
Reading a. _____



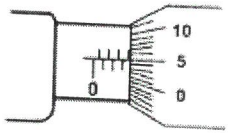
Reading b. _____



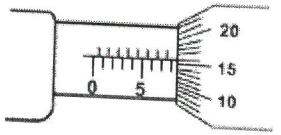
Reading c. _____



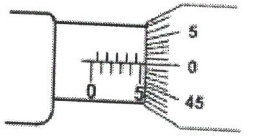
Reading d. _____



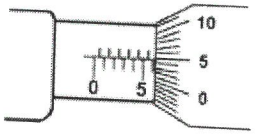
Reading e. _____



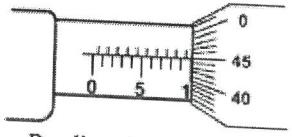
Reading f. _____



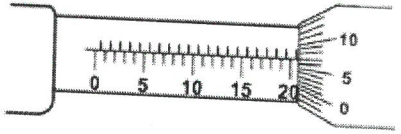
Reading g. _____



Reading h. _____



Reading i. _____



Reading j. _____

Production Part Approval

DIMENSIONAL TEST RESULTS

Organization:	Your Company Name	Part Number:	Enter Your Part Number
Supplier/Vendor Code:	Your Supplier Code	Part Name:	Part Description
INSPECTION FACILITY:		Design Record Change Level:	Enter Rev Level
Lab/Insp Facility Used		Engineering Change Documents:	

Item	Dimension/Specification	Specification / Limits	Test Date	Qty. Tested	Organization Measurement Results (Data)	Ok	N O
						X	
						X	
						X	
						X	
						X	
						X	
						X	
						X	
						X	
						X	
						X	
						X	
						X	
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						X	
						X	
						X	
						X	
						X	
						X	
						X	
						X	
						X	
						X	
						X	
						X	

Blanket statements of conformance are unacceptable for any test results.

SIGNATURE	TITLE	DATE

Assembly Simulation

The product –
Michigan Banjo

What is quality?

Alignment of frame
Placement/alignment of label
4 rubber bands
Evenly spaced rubber bands

Mistake Proof

Inspection
Totally prevent an error

Continuous Improvement using the scientific method (experiments)

- Plan (the experiment)
- Test (no glue)
- Check (quality)
- Act (based on results), next experiment

Objective(s)

- 100% quality
- Time

Quality Management System (QMS)

What it is:

A QMS is a system designed to ensure that a company meets the requirements of the customer. It includes all aspects of your business, from the point of initial customer contact to completely meeting the customer's needs.

Quality, it's the way we do business.

QMS Goals:

- Customer satisfaction (meet customer needs/requirements)
- Meet your company's quality goals and objectives
- Continually Improve – act on opportunities for improvement (OFIs), reduce/eliminate variation (product or process)

Customers:

- Internal (upstream/downstream) and external
- Their expectations
- Defining "quality"
- Consequences of not meeting expectations
- How to measure quality

Why?

- ✓ Satisfied customers
- ✓ *Documented* procedures, processes, and/or work instructions that are aimed at making a consistent product
- ✓ A structure to allow *implementation* of a system aimed at making a consistent product
- ✓ Able to determine and maintain the *effectiveness* of the system
- ✓ *Continually improve*

WIIFM

***Who* is involved with developing, implementing and improving the QMS? Who is responsible for quality at your company?**

Everyone

How: QMS reflects your business model…from point of initial customer contact to completely meeting the customers' needs.

Quality—it's the way you do business

How: Key QMS Concepts

- Documentation
- Implementation
- Effectiveness
- Improvement
- Audit, Audit, Audit!

How – Continuous Improvement (CI)

A QMS Guiding Light: Drive out waste

The QMS CI Cycle

- ➢ Management Review (Analysis of data, customer satisfaction/feedback
- ➢ Internal and surveillance audits
- ➢ Corrective and Preventive action (Document revision, training)
- ➢ Continual Improvement

QMS/Manufacturing Processes and PDCA

- ❖ Plan
  - – Understand the customers requirements
  - – Establish related objectives
  - – Develop processes to accomplish
- ❖ Do
  - – Implement processes
- ❖ Check
  - – Monitor and measure products, services, and processes relative to objectives and requirements
- ❖ Act
  - – Continually improve the system (comprised of processes)

What is waste?

- Anything beyond the **minimum** amount of:
  - equipment
  - materials
  - parts
  - space
  - worker's time
  - information

that are "absolutely essential" to add value to the product.

Identification & Elimination of Waste

What it is:

Elimination of waste creates more value added for your company and your customer

Why?

How Does Identifying and Eliminating Waste Affect Profits?

⇩ **Cost** = ⇧ **Profit**

Even if costs remain constant, elimination of waste can increase throughput and reduce total lead time therefore profits increase.

Throughput: What gets out the back door to the customer. What the customer pays for.

Lead Time: The time, in days, from Order Receipt to Product Shipment.

What is waste?

Anything beyond the **minimum** amount of:

- equipment
- materials
- parts
- space
- worker's time
- information

that are "absolutely essential" to add value to the product.

What we look at when identifying and eliminating.

The 8 Types of Waste:

- ***OVER PRODUCTION:*** MAKING MORE OF SOMETHING THAN THE CUSTOMER REQUESTS
- ***INVENTORY:*** MORE PRODUCT / MATERIAL IS ON HAND THAN IS NECESSARY TO MEET THE CUSTOMERS' NEEDS
- ***MOTION:*** ANY EXTRA MOVEMENT OF THE OPERATOR WHILE PERFORMING THE WORK SEQUENCE
- ***OVER PROCESSING:*** DOING MORE TO THE PRODUCT THAN THE CUSTOMER REQUESTED
- ***MATERIAL MOVEMENT (TRANSPORTATION):*** MOVING THE PRODUCT MORE THAN IS NECESSARY
- ***WAITING:*** ANY TIME VALUE CANNOT BE ADDED BECAUSE OF A DELAY
- ***CORRECTION:*** ANYTHING THAT IS NOT 'DONE RIGHT THE FIRST TIME' (REWORK, INSPECTION, TOUCH-UP)
- ***KNOWLEDGE:*** FAILURE TO CAPTURE AND USE INDIVIDUAL OR COLLECTIVE KNOWLEDGE AND EXPERIENCE OF OUR EMPLOYEES

How? (Plan-Do-Check-Act):

- Train employees
- Identify
  - Waste walk
  - Waste audit
  - Value Stream Map
- Improvement ideas
- Select an improvement
- Test the improvement
- Check if improvement worked
- Act on test results
  - If worked
    - Standardize
    - Sustain (audit)
  - If did not work
    - Select another improvement to test

Who **is involved with identifying and eliminating waste?**

Everyone

GRCC
WORKFORCE TRAINING

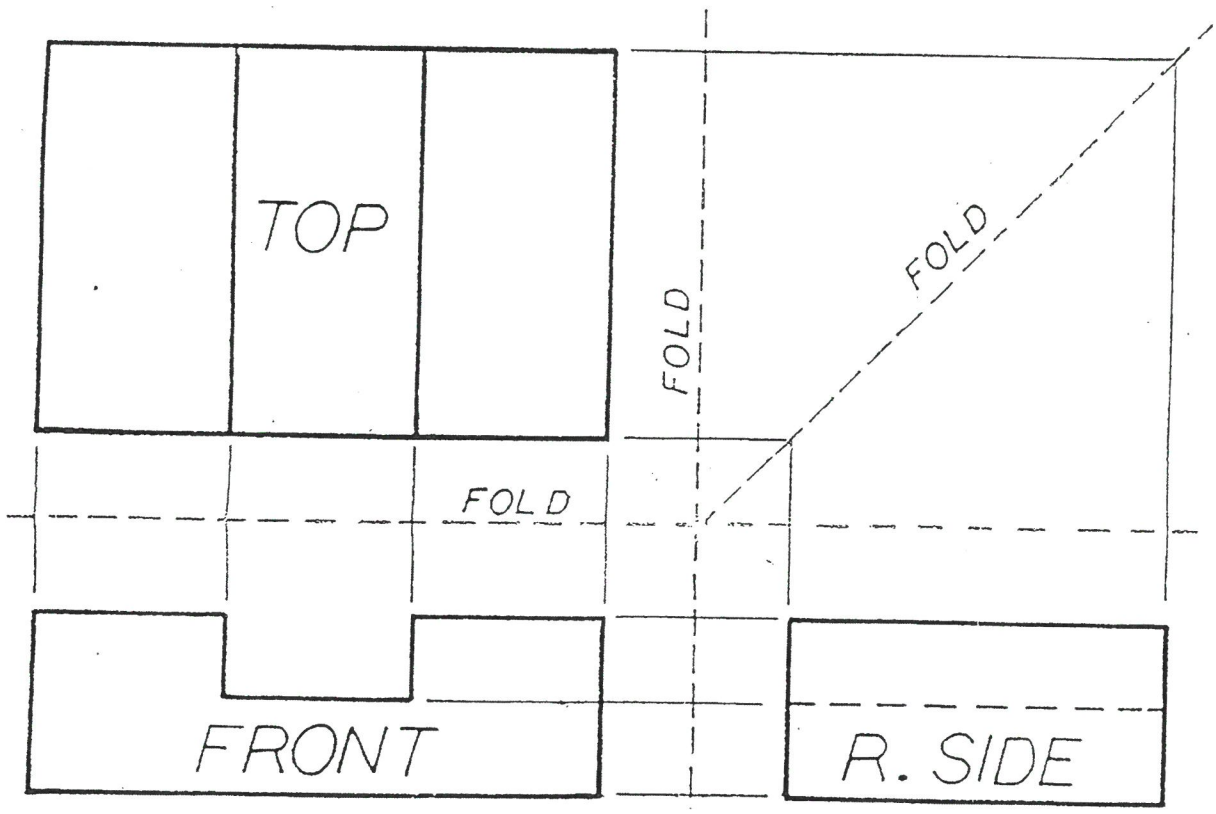
Introduction to Advanced Manufacturing Series

Blueprint Reading for Manufacturing 1 (BP1)

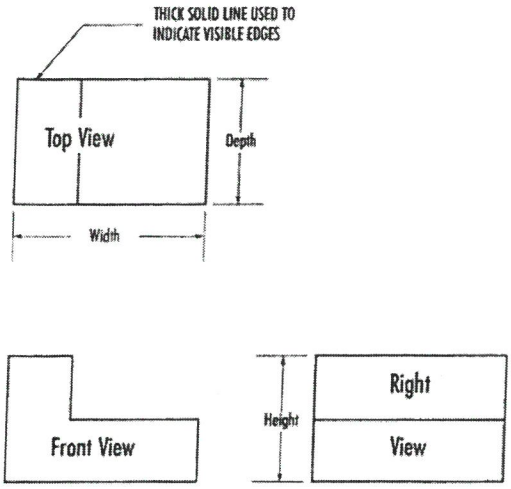
Description: Engineering drawings detail what your customer requires for product specifications. Insuring that all on the manufacturing team can read and interpret prints may prevent errors, rework and waste. BP1 activities include drawing and reading prints to cover features common to most drawings.

Course Outcomes:

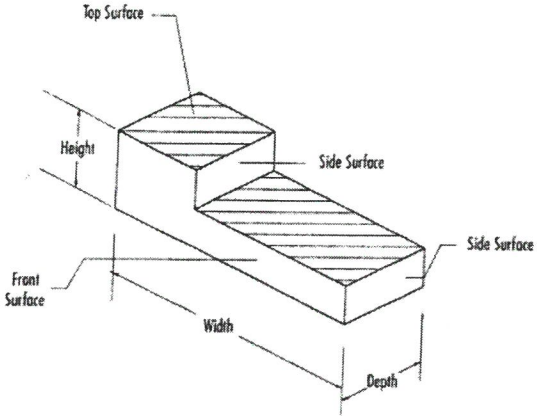
- Identify types of lines and views
- Learn print geography
- Identify features and dimensions on alternate views



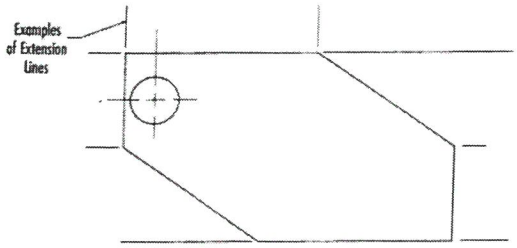
An **orthographic** drawing is one which uses as many of the six principle views necessary to represent the part effectively. Remember, the front view is the one having the most information for the person interpreting the drawing. **Orthographic** drawings are those that have principle views represented.



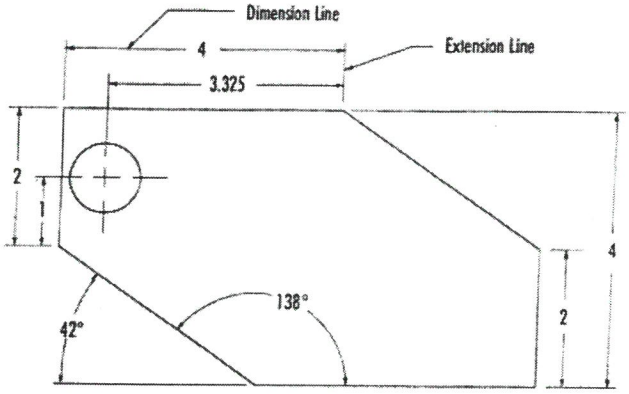
An **isometric** drawing is one which shows a three dimensional perspective of an object. It may be useful if an actual part is not available.



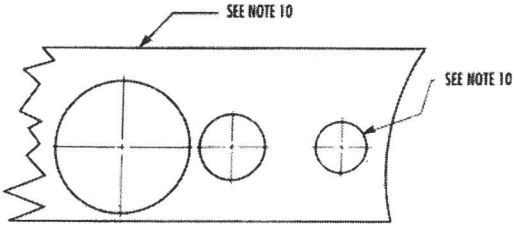
4. **Extension lines** are lines that continue out from a surface, but do not touch that surface. They are used to clarify the dimensions of a part, and are commonly used with dimensions lines.



5. **Dimension lines** are thin solid lines with arrowheads at each end. The tips of these arrowheads are used to mark the specific dimension (distance) referred to by a measurement placed at a break in the dimension line.

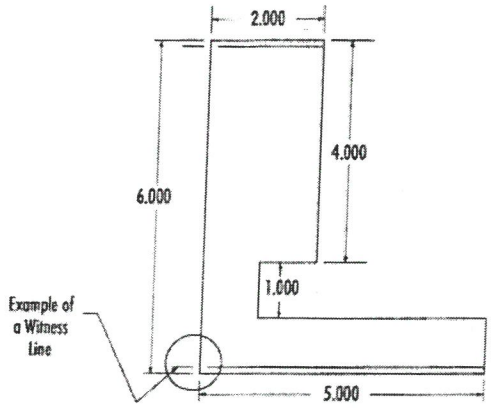


6. **Leader lines** are thin solid lines used to focus attention to features on the drawing, such as dimensions, notes, symbols and item numbers. They are usually represented by a bent line ending with a single arrowhead.



7. **Phantom lines** are made up of thin long dashes alternating with two short dashes. Phantom lines are used to show alternate positions of moving parts and to show repeated detail to enhance clarity.

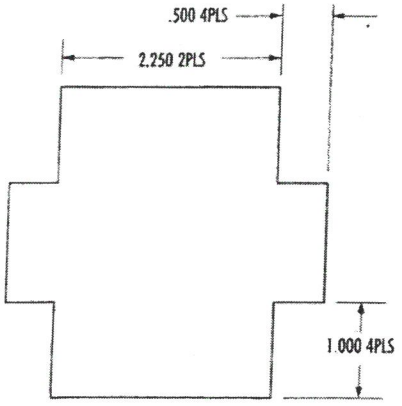
11. **Witness lines** are short extension lines, which are usually not dimensioned. They are used to clarify which extension line is being used to represent an edge or surface of an object.



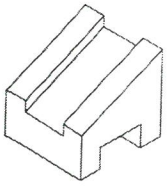
12. **Stitch lines** are used to represent specifications in the sewing or stitching process. They are made up of short dashes with spaces of equal length.

- -

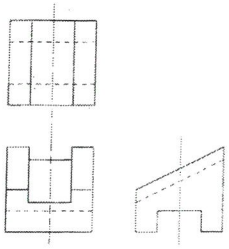
Places (pls) is used to show that a feature on the drawing is repeated. This reference means that the person interpreting the drawing must look for the area that is the same as the one being dimensioned. There will be a display of the number of times that the repeated feature will occur on the drawing. .500 4PLS may be written as .500 X4



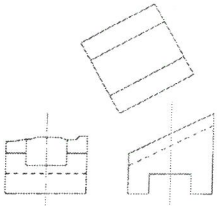
Auxiliary views are used to show the true size or shape of an inclined or sloped surface on a part when a principal view cannot.



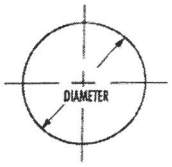
You can see from the drawing below that some of the details of the part are distorted because of the angle at which the part was drawn.



The auxiliary view allows you to see the particular size and true shape of the sloped side of the part.

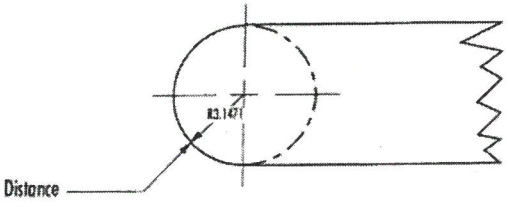


Diameter means the distance from one side of a circle to the other side passing through a center point.



Some abbreviations for diameter are **DIA** and **Ø**.

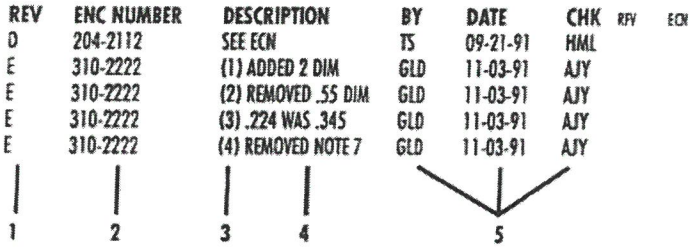
Radius defines the distance from the center of a circle to the outside of the circle.



Exercise 2: Bracket Print

Revisions are usually referred to by letter, and are dated and checked just like a drawing at its initial release.

Revisions are listed in the information block called the **revision block**.



Information usually listed in the revision block includes:

1. A revision to identify change to the drawing.

2. An engineering change number **ECN** to identify the documentation which gives a detailed explanation of what was changed on the drawing.

3. A **change identification letter** matches the letter of the revision and will be located on the drawing near the location of the area that has been changed. Usually these letters are circled and if there is more than one change per revision letter, a number will appear next to the letter to identify which change is being referred to.

Tolerance blocks will list the acceptable amount of variation of dimensions on the part.

Tolerances are not always located in an information block, and may appear in a variety of locations on the drawing. **There should always be a tolerance specified for all dimensions on an engineering drawing.**

	Dimension and tolerance	**Nominal**	**Maximum**	**Minimum**
1	2.125 ± .005	2.125	2.130	2.120
2	0.900 + .005 - .000	0.900	0.905	0.900
3	1.062 ± .003			
4	.1875 ± .0015			
5	.5000 + .0000 -.0001			
6	.725 ± .004			
7	.2375 + .0010 -.0000			

Exercise 3: Support Print

Manufacturing Terminology and Processes

Where we work…

- **Industry** is the production of an economic good or service within an economy.
- Manufacturing **industry** is a key sector

Where we work…

UNITED STATES DEPARTMENT OF LABOR
BUREAU OF LABOR STATISTICS

Service-Providing Industries

supersector group

The service-providing industries supersector group consists of these supersectors and sectors:

- Trade, Transportation, and Utilities
  - Wholesale Trade (NAICS 42)
  - Retail Trade (NAICS 44-45)
  - Transportation and Warehousing (NAICS 48-49)
  - Utilities (NAICS 22)
- Information
  - Information (NAICS 51)
- Financial Activities
  - Finance and Insurance (NAICS 52)
- Real Estate and Rental and Leasing (NAICS 53)
- Professional and Business Services
  - Professional, Scientific, and Technical Services (NAICS 54)
- Management of Companies and Enterprises (NAICS 55)
- Administrative and Support and Waste Management and Remediation Services (NAICS 56)
- Education and Health Services
  - Educational Services (NAICS 61)
- Health Care and Social Assistance (NAICS 62)
- Leisure and Hospitality
  - Arts, Entertainment, and Recreation (NAICS 71)
- Accommodation and Food Services (NAICS 72)
- Other Services (except Public Administration)
  - Other Services (except Public Administration) (NAICS 81)

Where we work...

UNITED STATES DEPARTMENT OF LABOR
BUREAU OF LABOR STATISTICS

Goods-Producing Industries

About the Goods-Producing Industries supersector group

The goods-producing industries supersector group consists of these supersectors and sectors:

- Natural Resources and Mining
  - Agriculture, Forestry, Fishing and Hunting (NAICS 11)
- Mining, Quarrying, and Oil and Gas Extraction (NAICS 21)
- Construction
  - Construction (NAICS 23)
- Manufacturing
  - Manufacturing (NAICS 31-33)

(All other industries are part of the Service-Providing Industries supersector group.)

What we do....

UNITED STATES DEPARTMENT OF LABOR
BUREAU OF LABOR STATISTICS

The Manufacturing sector comprises establishments engaged in the mechanical, physical, or chemical transformation of materials, substances, or components into new products.

Establishments in the Manufacturing sector are often described as plants, factories, or mills and characteristically use power-driven machines and materials-handling equipment. However, establishments that transform materials or substances into new products by hand or in the worker's home and those engaged in selling to the general public products made on the same premises from which they are sold, such as bakeries, candy stores, and custom tailors, may also be included in this sector.

Manufacturing establishments may process materials or may contract with other establishments to process their materials for them. Both types of establishments are included in manufacturing.

North American Industry Classification System

What we do....

UNITED STATES DEPARTMENT OF LABOR
BUREAU OF LABOR STATISTICS

The manufacturing sector consists of these subsectors:

- Food Manufacturing: NAICS 311
- Beverage and Tobacco Product Manufacturing: NAICS 312
- Textile Mills: NAICS 313
- Textile Product Mills: NAICS 314
- Apparel Manufacturing: NAICS 315
- Leather and Allied Product Manufacturing: NAICS 316
- Wood Product Manufacturing: NAICS 321
- Paper Manufacturing: NAICS 322
- Printing and Related Support Activities: NAICS 323
- Petroleum and Coal Products Manufacturing: NAICS 324
- Chemical Manufacturing: NAICS 325
- Plastics and Rubber Products Manufacturing: NAICS 326
- Nonmetallic Mineral Product Manufacturing: NAICS 327
- Primary Metal Manufacturing: NAICS 331
- Fabricated Metal Product Manufacturing: NAICS 332
- Machinery Manufacturing: NAICS 333
- Computer and Electronic Product Manufacturing: NAICS 334
- Electrical Equipment, Appliance, and Component Manufacturing: NAICS 335
- Transportation Equipment Manufacturing: NAICS 336
- Furniture and Related Product Manufacturing: NAICS 337
- Miscellaneous Manufacturing: NAICS 339

UNITED STATES DEPARTMENT OF LABOR
BUREAU OF LABOR STATISTICS

Change Output Options: From: 2004 To: 2014
Include graphs

Data extracted on: April 10, 2014 (11:35:12 AM)

Employment, Hours, and Earnings from the Current Employment Statistics survey (National)

Series Id: CES3000000001
Seasonally Adjusted
Super Sector: Manufacturing
Industry: Manufacturing
NAICS Code: -
Data Type: ALL EMPLOYEES, THOUSANDS

How many?

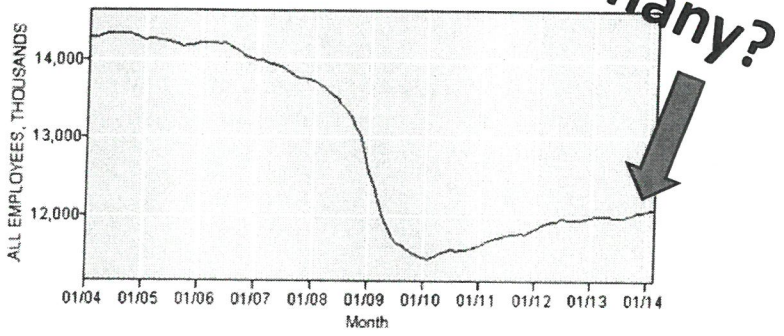
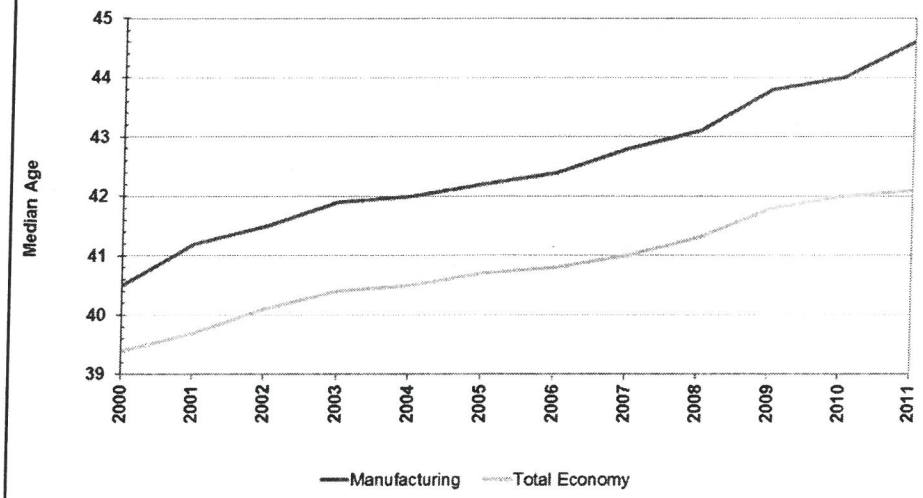


Figure 58 – The Age Gap Between the Manufacturing and the Non-Farm Workforces Widens *(Updated January 2013)*

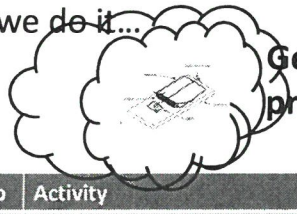


Source(s): U.S. Bureau of Labor Statistics, Current Population Survey

MAPI

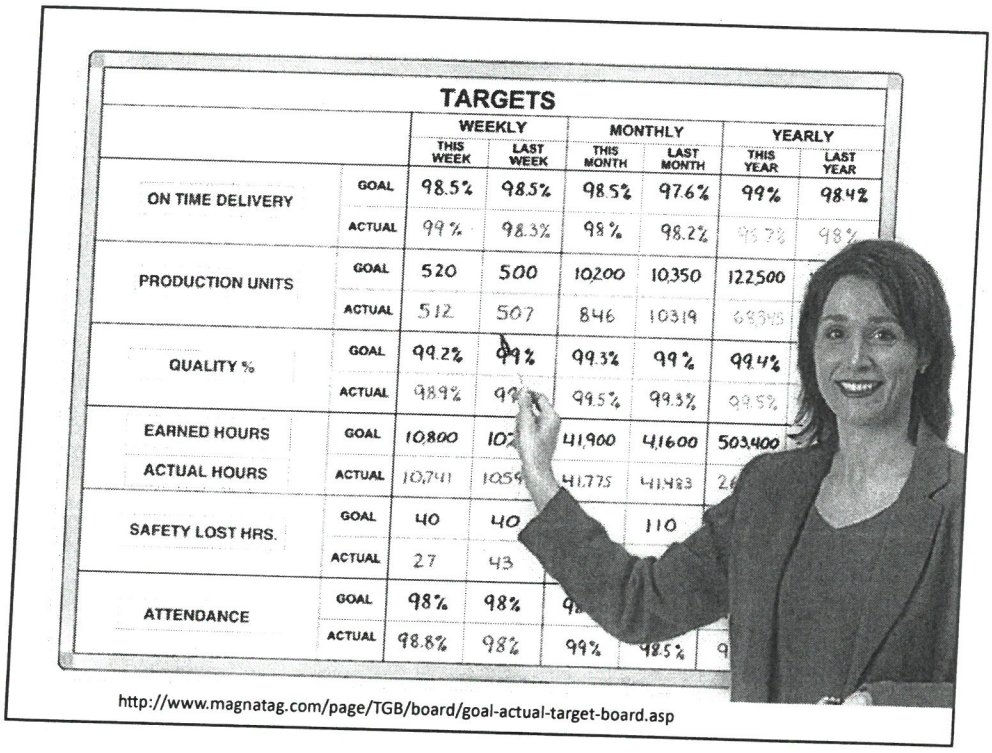
http://www.themanufacturinginstitute.org/Research/Facts-About-Manufacturing/Facts-2012.aspx

How we do it...



Getting from concept to finished product...step by step

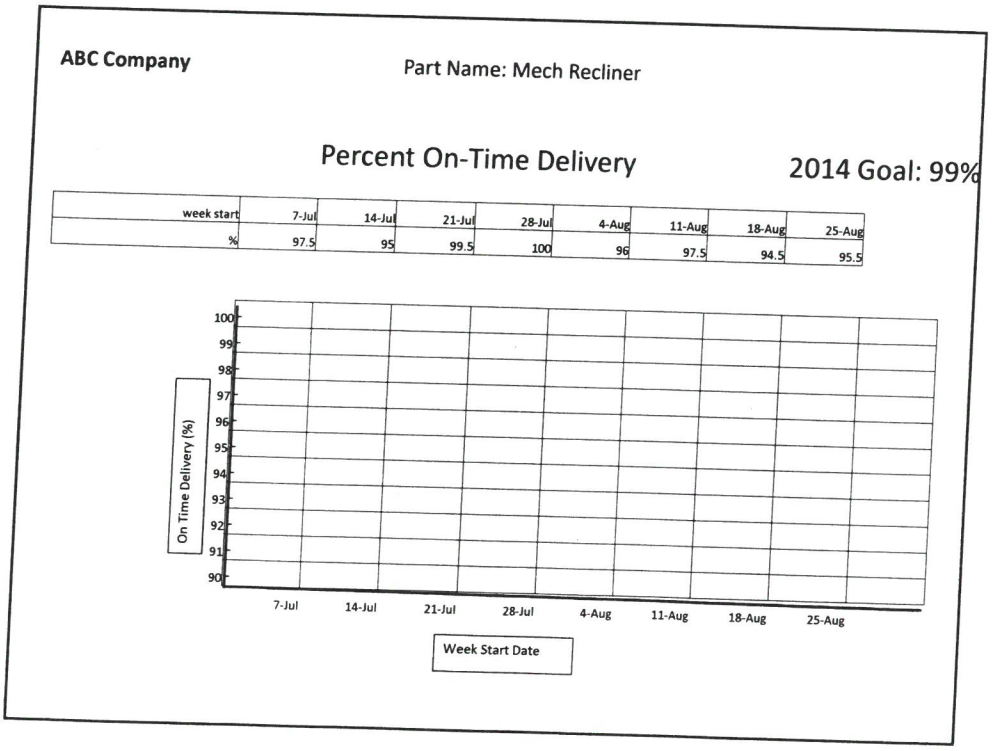
Step	Activity	For the mousetrap
1	Concept	shown
2	Plan what features and functions you want	Size, materials, effectiveness, cost, reliability
3	Product Design – create a print describing all the requirements	Dimensions and tolerances, material specs based on function, fastening, finish requirements, labeling
4	Mfg Process – describe how you will build it	Process flow, what will we do vs purchasing parts and services
5	Check – Is the process good enough for the design requirements	Trial run – does our part meet the print requirements
6	Produce to your plan	Produce at a rate and schedule that meets your customers' demand
7	Implement process improvements to reduce waste and cost	Continuous improvement – start now, never stop.



TARGETS

		WEEKLY		MONTHLY		YEARLY	
		THIS WEEK	LAST WEEK	THIS MONTH	LAST MONTH	THIS YEAR	LAST YEAR
ON TIME DELIVERY	GOAL	98.5%	98.5%	98.5%	97.6%	99%	98.4%
	ACTUAL	99%	98.3%	98%	98.2%	96.7%	98%
PRODUCTION UNITS	GOAL	520	500	10,200	10,350	122,500	
	ACTUAL	512	507	846	10319	68345	
QUALITY %	GOAL	99.2%	99%	99.3%	99%	99.4%	
	ACTUAL	98.9%	99%	99.5%	99.3%	99.5%	
EARNED HOURS	GOAL	10,800	10	41,900	41,600	503,400	
ACTUAL HOURS	ACTUAL	10,741	1059	41,775	41,983	2	
SAFETY LOST HRS.	GOAL	40	40		110		
	ACTUAL	27	43				
ATTENDANCE	GOAL	98%	98%	9			
	ACTUAL	98.8%	98%	99%	98.5%	9	

http://www.magnatag.com/page/TGB/board/goal-actual-target-board.asp



ABC Company

Part Name: Mech Recliner

Percent On-Time Delivery

2014 Goal: 99%

week start	7-Jul	14-Jul	21-Jul	28-Jul	4-Aug	11-Aug	18-Aug	25-Aug
%	97.5	95	99.5	100	96	97.5	94.5	95.5

			Published
	All	All	
Midwest Economy - Labor Force Statistics	Employment, Unemployment	Table	Aug 2015
Grand Rapids Area Economic Summary		Economic Summary	Jul 2015
Occupational Employment and Wages in Grand Rapids-Wyoming — May 2014	Employment, Pay	News Release	Jul 2015

Showing 1 to 3 of 3 entries

Grand Rapids-Wyoming, MI Economy at a Glance:

Data Series	Back Data	Jan 2015	Feb 2015	Mar 2015	Apr 2015	May 2015	June 2015
Labor Force Data							
Civilian Labor Force (1)		547.1	547.9	550.4	551.3	567.1	(P) 566.7
Employment (1)		522.7	526.4	528.8	532.9	543.5	(P) 543.0
Unemployment (1)		24.4	21.5	21.6	18.4	23.6	(P) 23.7
Unemployment Rate (2)		4.5	3.9	3.9	3.3	4.2	(P) 4.2
Nonfarm Wage and Salary Employment							
Total Nonfarm (3)		516.1	518.0	521.4	526.7	538.2	(P) 541.6
12-month % change		2.8	2.8	2.9	3.6	4.1	(P) 4.3
Mining, Logging, and Construction (3)		18.7	18.8	19.5	20.7	22.9	(P) 24.2
12-month % change		4.5	5.0	7.1	8.9	12.8	(P) 14.2
Manufacturing (3)		104.5	104.8	105.1	105.4	107.4	(P) 108.5
12-month % change		4.0	3.8	3.6	3.9	5.0	(P) 4.6
Trade, Transportation, and Utilities (3)		89.7	89.9	89.7	90.0	91.2	(P) 92.1
12-month % change		3.7	4.2	3.5	2.2	1.7	(P) 1.8
Information (3)		5.3	5.3	5.3	5.3	5.3	(P) 5.3
12-month % change		0.0	1.9	0.0	-1.9	-1.9	(P) -1.9
Financial Activities (3)		24.6	24.4	24.7	25.2	25.8	(P) 25.8
12-month % change		0.0	0.4	1.6	2.9	4.9	(P) 4.5
Professional and Business Services (3)		78.7	79.6	79.3	80.8	83.5	(P) 84.6
12-month % change		3.4	4.6	4.6	5.6	5.7	(P) 6.8
Education and Health Services (3)		83.9	84.9	86.0	86.1	86.4	(P) 85.4
12-month % change		3.1	2.7	3.4	4.9	5.0	(P) 4.9
Leisure and Hospitality (3)		43.0	42.0	42.9	44.6	48.7	(P) 50.6
12-month % change		2.6	0.5	0.7	3.7	6.6	(P) 8.1
Other Services (3)		21.3	21.3	21.5	21.5	21.6	(P) 21.8
12-month % change		0.5	0.0	0.5	1.4	0.5	(P) 0.5
Government (3)		46.4	47.0	47.4	47.1	45.4	(P) 43.3
12-month % change		-0.6	-1.1	-0.4	-0.2	-1.3	(P) -3.6

Footnotes
(1) Number of persons, in thousands, not seasonally adjusted.
(2) In percent, not seasonally adjusted.
(3) Number of jobs, in thousands, not seasonally adjusted. See About the data.

Terminology

- A-Z ------ ask or google it!

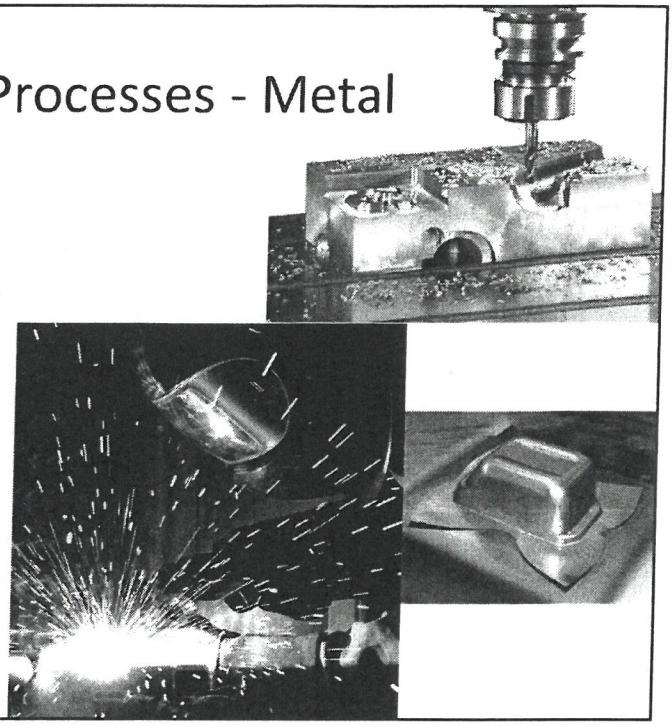
http://www.toolingu.com/definition-900230-12328-productivity-metrics.html

Processes to Shape Raw Materials

- How we make stuff
  - Automotive: metal, plastic, wood, electronics, glass, fabric, chemicals
  - Furniture: metal, plastic, wood, fabric, pneumatics
  - Food processing: food, plus…

Processes - Metal

- Machining
  - Cutting
  - Milling
  - Grinding
- Casting
- Forming
- Joining
  - Welding



Wikipedia

- **Metalworking** is the process of working with metals to create individual parts, assemblies, or large-scale structures. The term covers a wide range of work from large ships and bridges to precise engine parts and delicate jewelry. It therefore includes a correspondingly wide range of skills, processes, and tools.

Steel

Machining

3 General metalworking processes
4 Casting
5 Forming processes
  5.1 Bulk forming processes
  5.2 Sheet (and tube) forming processes
6 Cutting processes
  6.1 Milling
  6.2 Turning
  6.3 Threading
  6.4 Grinding
  6.5 Filing
  6.6 Other
7 Joining processes
  7.1 Welding
  7.2 Brazing
  7.3 Soldering
  7.4 Riveting
8 Associated processes
  8.1 Heat treatment
  8.2 Plating
  8.3 Thermal spraying

Petroleum to Plastics

- **1.** Petroleum is drilled and transported to a refinery.
- **2.** Crude oil and natural gas are refined into ethane, propane, hundreds of other petrochemical products and, of course, fuel for your car.
- **3.** Ethane and propane are "cracked" into ethylene and propylene, using high-temperature furnaces.
- **4.** Catalyst is combined with ethylene or propylene in a reactor, resulting in "fluff," a powdered material (polymer) resembling laundry detergent.
- **5.** Fluff is combined with additives in a continuous blender.
- **6.** Polymer is fed to an extruder where it is melted.
- **7.** Melted plastic is cooled then fed to a pelletizer that cuts the product into small pellets.
- **8.** Pellets are shipped to customers.
- **9.** Customers manufacture plastic products by using processes such as extrusion, injection molding, blow molding, etc.

http://www.reachoutmichigan.org/funexperiments/quick/plastic.html

Resume Worksheet

Full Name _____

Email Address _____

Phone Number _____

Mailing Address _____

_____

Objective:

_____

_____

Work Experience (Most Recent)

Name of Company _____ City, State _____

Position _____

Start Date _____ End Date _____

Responsibilities:

- _____
- _____
- _____
- _____
- _____
- _____

Work Experience #2

Name of Company _____ City, State _____

Position _____

Start Date _____ End Date _____

Responsibilities:

- _____
- _____
- _____
- _____
- _____
- _____

Work Experience #3

Name of Company _____ City, State _____

Position _____

Start Date _____ End Date _____

The language you use in your résumé says a lot about what type of employee you are and your competency level. The following pages will help you choose words that are applicable and relevant to portray the best image of your abilities.

Key Words/Action Words

Actively
Established
Evaluate
Participated
Schedule
Coordinate
Increased
Proposed
Strategy
Created
Launched
Reduced
Support
Effect
Eliminate
Organized
Originate
Approve
Generate
Program
Solve
Control
Improve
Recommend
Supervise
Direct
Manage
Motivated
Responsibilities
Revise
Analyze
Founded
Pinpointed
Set up
Completed
Interpret
Proficient
Successfully
Demonstrate
Maintain
Revamped
Responsible
Administer
Expedite
Plan
Simplicity
Conduct
Implemented
Provide
Streamline
Develop
Lecture
Reorganized
Accelerated
Adapted
Expanded
Perform
Significantly
Conceived
Influence
Proved
Structure
Delegate
Lead
Reinforced
Teach

Self-Describing Words

Professional
Active
Diplomatic
Loyal
Respective
Analytical
Attentive
Determined
Logical
Resourceful
Ambitious
Efficient
Energetic
Independent
Reliable
Alert
Economical
Objective
Optimistic
Realistic
Aggressive
Discrete
Methodical
Sense-of-humor
Sincere
Adaptable
Disciplined
Mature
Self-reliant
Broad-minded
Enterprising
Personable
Tactful
Creative
Imaginative
Perceptive
Systematic
Constructive
Forceful
Productive
Sophisticated
Consistent
Fair
Practical
Will relocate
Conscientious
Extroverted
Positive
Will travel
Enthusiastic
Pleasant
Talented
Dependable
Trustworthy
Ethical

Keywords for Interpersonal Traits

Ability to delegate
Accurate
Assertive
Creative
Ethical
Follow up
Leadership
Oral communication
Public speaking
Self accountable
Supportive
Tenacious
Ability to implement
Adaptable
Communication skill
Customer oriented
Flexible
High energy
Multitasking
Organizational skills
Results oriented
Self management
Takes initiative
Willing to travel
Ability to plan
Aggressive
Competitive
Detail minded
Follow instructions
Industrious
Open minded
Persuasive
Risk taking
Sensitive
Team building
Ability to train
Analytical ability
Conceptual ability
Empowering others
Follow through
Innovated
Open communication
Problem solving
Safety conscious
Setting priorities
Team player

JOHN DOE

622 Godfrey SW, Grand Rapids MI |
616-234- 3168 | davidlovell@grcc.edu

SUMMARY

A driven, experienced college graduate looking for an opportunity to apply my education, experience, and creativity to improve the student experience at a secondary educational institution.

EXPERIENCE

(Dec 2014-Current) **Job Developer** |

Grand Rapids Community College | *Grand Rapids, MI*

- Assisted graduating students in finding and securing long-term, meaningfully employment.
- Networked with community employers to identify workplace needs and assist in filling those needs with qualified candidates.

(Oct 2013-Oct 2014) **Retention Specialist** |

Goodwill Industries | *Grand Rapids, MI*

- Instructed employability-skills workshops to assist participants in establishing a career.
- Developed long-lasting relationships with participants to help identify and overcome barriers to sustaining employment

EDUCATION

May, 2014 **Bachelor's Degree of Business Administration** |

Ferris State University | *Big Rapids, MI*

May, 2012 **Associate's Degree of Arts** |

Grand Rapids Community College | *Grand Rapids, MI*

Reference Worksheet:

Reference Option #1:

Name _____

Relationship _____

Phone # _____

Email _____

Permission? ☐
Yes

Reference Option #2:

Name _____

Relationship _____

Phone # _____

Email _____

Permission? ☐
Yes

Reference Option #3:

Name _____

Relationship _____

Phone # _____

Email _____

Permission? ☐
Yes

Backup Option #1: _____

Backup Option #2: _____

March 31, 20XX

Mr. John M. Smith
Senior Recruitment Consultant
Company ABC
55 ABC Avenue
City ABC, State ABC 11111

Dear Mr. Smith:

Your advertisement for a software engineer in the July issue of Magazine ABC caught my attention. I was attracted to the ad by my strong interest in software design and Database.

I have worked with a CALMA system to develop VLSI circuits and I have substantial experience designing interactive CAD software. As a result of this experience, I can make a direct and immediate contribution to your organization. I have enclosed a copy of my resume, which details my qualifications and suggests how I might be of service to your organization.

I would like to meet with you to discuss your open position for a software engineer. If you wish to arrange an interview, please contact me at the above address or by telephone at (000) 555-1234.

Thank you for your consideration.

Sincerely yours,

John Doe

JOHN SMITH

877-875-7706 | info@greatresumeslast.com

(Date)

(Company Name)
(Hiring Manager's Name)
(Address)
(City, State, Zip)

Dear (Hiring Manager's Name):

Thank you for allowing me to present myself as a candidate for the position of Mechanical Trades Instructor, a prospect about which I am very excited. Given my background, I can understand the need for an Instructor who maintains a working knowledge of the industry and can effectively transfer that knowledge to students through comprehensive instruction and hands on experience. What this means for you is that as Mechanical Trade Instructor I can bring the skill, insight, and expertise to motivate students in the classroom.

As a Mechanical Trades Instructor for the past six years I have led up to 5 classes per intake with 24 students per intake and 5 intakes a year covering topics such as Trade Calculations, Applied Physics, Hydronics Theory, Plumbing Theory and Gas Fitting Theory. My dedication to the industry partnered with my ability to mentor new instructors makes me an ideal candidate for the position.

I would welcome the opportunity to meet with you to further discuss how my strengths would fit into your institution. Thank you for your consideration. I look forward to hearing from you soon.

Sincerely,

Enclosure: Résumé

Worksheet

Your name
Your address
Your city, state, zip
Your phone number
Your email address

Today's date

Manager's name and title
Department's name
Company's name
Address
City, state, zip

Re: (Job code, if listed in an ad or job posting)

Dear (Mr. or Ms.):

Get the manager's attention

_____

_____

Rouse the manager's interest

_____

_____

Create a desire to meet you

- _____
- _____
- _____

Ask the manager to take action

_____

_____

Sincerely,

Your Signature

Pat Perfect

Employer Research Sheet

Company _____

Notes:

_____

_____

_____

Interview Questions:

_____

_____

_____

Company _____

Notes:

_____

_____

_____

Interview Questions:

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Company _____

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Interview Questions:

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Interview Questions:

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Company _____

Notes:

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Interview Questions:

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M-CAM

Subject Matter Expert (SME) Course Review Summary

College: Grand Rapids Community College

M-CAM Training Area: ☐CNC/Machining ☐Multi-Skilled/Mechatronics ☑Production Operation ☐Welding/Fabrication

Degree Program Name: Manufacturing Readiness

Title of Course: Manufacturing Readiness

Subject Matter Expert (SME) Reviewer Information

Name: Scott D. Johnson

Title: Human Resource Mgr.

Phone: 616 258 5280

Email: Scott.Johnson@KV.com

Organization/Affiliation: KMAPC & Vogt. mfg

Attach Resume or provide credentials (showing years of experience and work experience that is relevant to course content):

Synopsis of Findings:

We have been pleased with the results of this program Since 7/20/15 we have hired 14 ~~graduates~~. With many of them rising through our ranks to upper level positions

Reviewers Signature _____

Date: 1/20/17

Michigan Coalition for Advanced Manufacturing
Subject Matter Expert Course Review

1. Course Overview and Objectives	Exceptional	Satisfactory	Ineffective
The goals and purpose of the course is clearly stated.	✓		
Prerequisites and/or any required competencies are clearly stated.	✓		
Learning objectives are specific and well-defined.	✓		
Learning objectives describe outcomes that are measurable.	✓		
Outcomes align to occupational focus (industry skills and standards).	✓		
Comments or recommendations:			

2. Material and Resources	Exceptional	Satisfactory	Ineffective
The instructional materials contribute to the achievement of the course learning objectives.	✓		
The materials and resources meet/reflect current industry practices and standards.	✓		
The instructional materials provide options for a variety of learning styles.	✓		
Resources and materials are cited appropriately. If applicable, license information is provided.			
Comments or recommendations:			

3. Learning Activities	Exceptional	Satisfactory	Ineffective
Provide opportunities for interaction and active learning.	✓		
Help understand fundamental concepts, and build skills useful outside of the learning object.	✓		
Activities are linked to current industry practices and standards.	✓		
Comments or recommendations:			

Michigan Coalition for Advanced Manufacturing
Subject Matter Expert Course Review

4. Assessment Tools/Criteria for Evaluation	Exceptional	Satisfactory	Ineffective
The course evaluation criteria/course grading policy is stated clearly on syllabus.	✓		
Measure stated learning objectives and link to industry standards.	✓		
Align with course activities and resources.	✓		
Include specific criteria for evaluation of student work and participation.	✓		
Comments and recommendations:			

5. Equipment/Technology	Exceptional	Satisfactory	Ineffective
Meets industry standards and needs.	✓		
Supports the course learning objectives.	✓		
Provides students with easy access to the technologies required in the course/module.	✓		
Comments and recommendations:			

This workforce solution was funded by a grant awarded by the U.S. Department of Labor's Employment and Training Administration. The solution was created by the grantee and does not necessarily reflect the official position of the U.S. Department of Labor. The Department of Labor makes no guarantees, warrantees, or assurances of any kind, express or implied, with respect to such information, including any information on linked sites and including, but not limited to, accuracy of the information or its completeness, timeliness, usefulness, adequacy, continued availability, or ownership.

Scott D. Johnson
6752 Gettysburg Dr.
Hudsonville, MI, 49426
Home: (616) 669-4313
Email: 6752gettysburg@gmail.com

SUMMARY OF PROFESSIONAL QUALIFICATIONS

- Experienced manager with expertise in human relations and project management
- Proven success in the areas of leadership development
- Active participant in the Organizational and Strategic Planning process
- Extensive background in the area of OSHA/MIOSHA safety compliance
- Strong knowledge of Federal and State Employment Law
- Thorough understanding of operations management with significant exposure to lean principles
- Passionate in the area of employee retention while well rounded in the area of staff recruitment.

PROFESSIONAL EXPERIENCE

Human Resource Manager

Knape and Vogt Manufacturing
Grand Rapids and Wyoming, MI locations
Retail, OEM metal hardware manufacture
August 2005-Present

- Successfully managed staffing/training requirement to match the surging needs of the organization. At date of hire organization consisted of 548 team members. As a result of the recession of 2008, staffed was reduced to 464. From 2010 until now we have added in access of 400 team members. 260 of these team members were added in a 21 month period.
- Worked with GRCC to establish Manufacturing Readiness Certification program. This program trained and qualified applicants looking to enter the field of manufacturing. This program has proven to be extremely effective, even during the current work force shortage.
- Implemented the use of numerous testing mechanisms to determine propensity for success in our skilled and semi-skilled trades. These tests greatly reduced time spent on training candidates that lacked mathematical and mechanical skills required to do the job.
- Established critical, working relationships with a tenured team that had grown to distrust its leadership.
- Conduct annual compensation and benefit reviews. Making recommendation /changes as needed.
- Experienced and effective in working with people of diverse cultures and socio-economic backgrounds.
- Oversight of all aspects of staff performance; progressive discipline, mediation of staff disputes and grievance procedures in accordance with state and federal laws.
- Created and implemented performance evaluation process that has been used to determine merit pay, advancement and ultimately work force reductions.
- Responsible for the organizations MIOSHA/OSHA compliance.
- Promoted team unity via implementation of the Knape and Vogt social committee / care account.
- Improved overall communication through the implementation of U-Talk meetings
- Negotiated and maintained numerous contractual services to include temporary staffing, facilities management, uniform services and vending. Successfully reduced these expenditures by a total of 27.3%.
- Worked congruently with the operations management team to assist them in hitting their operational objectives.

Operations Manager

Clarion Technologies,
Caledonia, MI
Automotive and Non-Automotive plastics
May, 2004-August,2005

- Oversee the daily operations of a three shift, 250 person injection molding / assembly facility.
- Hire, train and evaluate a cross functional team of employee's.
- Oversight of all aspects of staff performance; progressive discipline, mediation of staff disputes and grievance procedures in accordance with state and federal laws
- Maintain MIOSHA/OSHA compliance.
- Developed cross training initiative that increased productivity by 12.6%.
- Establish and lead the team towards key measure objectives.
- Distributed daily workload to ensure all departments' complete work on time.
- Implemented lean manufacturing principles that improved productivity and quality standards.

Human Resource – Team Leader/ Shift Supervisor/ People Lead
Johnson Controls,
Holland, MI
Automotive Division, various locations
December 1993- May, 2004

- Provided human resource representation to a three shift injection molding / assembly facility.
- Oversight of all aspects of staff performance; progressive discipline, mediation of staff disputes and grievance procedures in accordance with state and federal laws
- Attended numerous behavioral based safety programs, to include the DuPont STOP program.
- Core developer and implementer of the J.C.I. (Johnson Controls) Leader in Training program. Program has served as the bench mark for leadership development in no less then six other organizations.
- Responsible for the development and mentorship of thirty six supervisors and team leaders along with the indirect mentorship of their immediate subordinates which at one time numbered in excess of 400 team members.
- Served as a B.O.S. (Business Operating System) Quality auditor tasked with insuring HR compliance and consistencies between all J.C.I. facilities.

Employee Benefits Sales Representative
Mony Financial Services
Miami, FL
April, 1991- December 1993

- Sold and serviced employee benefit packages to small/medium businesses in the great Miami area

K-9 Security Police Officer
United States Air Force – D.O.D. Division
April, 1987-April, 1991

- Conducted drug and bomb dog searches per the direction of the US Department of Defense.
- Certified US Customs Inspector.
- Patrolled various world wide Air Force Installations securing national resources.
- Granted Top Secret Clearance.
- Supervised/ mentored numerous up and coming Airmen.
- Awarded; USAF Accommodation Medal, Achievement Medal, Good Conduct Medal , National Defense Service Medal, NCO Professional Military Education Graduate Medal, Longevity Service Award, Basic Training and Tech Training Honor Graduate certificates.
- Honorably Discharged.

Professional Affiliations / Certifications

- Member of Society of Human Resources Management (SHRM)
- Certified Human Resource Specialist (CHRS) Michigan State University School of Labor
- Certified Employer Rights and Responsibilities Professional (CERRP) Michigan State University School of Labor
- HAZMAT- First Responder, CPR, AED Certification

Education

- **Masters of Management with an emphasis on Human Resources - Aquinas College. (3.96 g.pa.)**
- **Bachelor of Science in Business Administration with an emphasis on Human Resource Management. – Aquinas College**
- **Associates in Arts - Grand Rapids Community College.**
- Employment Law / Applications in Human Resources- Michigan State University School of Labor.
- Human Resource Management Level One and Two through the Grand Rapid's Employers Assoc.
- FMLA Compliance Certification through the Grand Rapid's Employers Assoc.
- DuPont Behavioral Based Safety Training.
- Toyota Kata – Michigan Engineering
- Johnson Controls Leader's in Action Training.
- Non-Commissioned Officer Training – U.S.A.F.

References Available upon Request