

Kentucky Manufacturing Skill Standards

Level 1 -- Basic



Measurement of Success

Manufacturing Skill Standards

Level 1 -- Basic

I. Communications and Teamwork

A1 Academic

- A1.1 Read process information and follow instructions
- A1.2 Read material and describe concepts
- A1.3 Use correct pronunciation
- A1.4 Use correct spelling
- A1.5 Write with accuracy, brevity, and clarity
- A1.6 Keyboarding
- A1.7 Knowledge of conflict and resolution techniques
- A1.8 Possess basic computer keyboarding skills
- A1.9 Understanding basics of interpersonal communication (listening, written/oral, etc.)

E1 Employability

- E1.1 Read documentation, such as computer manual, to determine actions for specific situations
- E1.2 Organize materials with a logical flow
- E1.3 Interpret and clarify directions prepared by others
- E1.4 Communicate with customer to establish requirements
- E1.5 Understanding team concepts
- E1.6 Write steps of an occupational process using sentences and statements as appropriate

II. Math and Measurement

A2 Academic

- A2.1 Add, subtract, multiply, and divide four digit numbers with the use of a calculator
- A2.2 Add, subtract, multiply, and divide four digit numbers without the use of a calculator
- A2.3 Apply basic math functions to solve problems
- A2.4 Convert between US and metric measurement systems
- A2.5 Convert fractional measurement to decimal measurement
- A2.6 Compute within measurement systems
- A2.7 Document results of measurement activities and calculations
- A2.8 Distinguish between US and metric measuring systems
- A2.9 Calculate with percents, rate, ratio, and proportion with the use of a calculator
- A2.10 Make reasonable estimates of arithmetic results without the use of a calculator
- A2.11 Use Hand Calculators

O2 Occupational

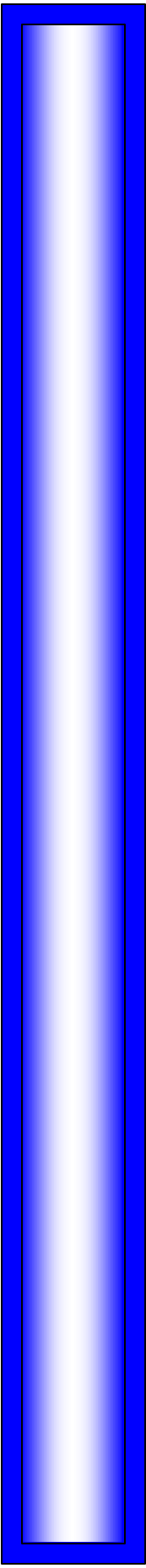
- O2.1 Create and interpret basic graphs and charts commonly used in manufacturing
- O2.2 Match measurement activities to manufacturing processes
- O2.3 Select and use appropriate measurement techniques and instruments
- O2.4 Demonstrate proper general measurement techniques

III. Workplace Safety and Health

E3 Employability

- E3.1 Assume responsibility for the personal safety of self and others
- E3.2 Maintain a clean and safe work environment
- E3.3 Demonstrate a positive personal attitude towards safety
- E3.4 Comply with established safety practices
- E3.5 Identify fire exits and fire-fighting equipment
- E3.6 Report unsafe practices to appropriate personnel

O3 Occupational

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- O3.1 Complete forms and paperwork as required
 - O3.2 Wear protective safety clothing as required
 - O3.3 Maintain and use protective guards and equipment on machinery
 - O3.4 Handle and store flammable materials appropriately
 - O3.5 Use electrical devices correctly and safely
 - O3.6 Prevent spontaneous ignition by practicing proper waste disposal habits
 - O3.7 Keep marked aisles clear of equipment and materials
 - O3.8 Interpret and display MSDS sheets as required
 - O3.9 Operate equipment in a safe, prescribed manner
 - O3.10 Follow established safety procedures when around machinery or equipment
 - O3.11 Follow established safety procedures when using tools or operating machinery
 - O3.12 Operate hand tools in a safe, prescribed manner
 - O3.13 Locate power shutoff controls for all machinery and equipment
 - O3.14 Identify & report malfunctions to appropriate personnel
 - O3.15 Inspect material, equipment and fixtures for defects
 - O3.16 Determine weight and operating limits of equipment
 - O3.17 Perform periodic checks during operation to assure proper function
 - O3.18 Respond to emergencies in the appropriate manner
 - O3.19 Describe ergonomics and its importance to the manufacturing process

IV. Problem Solving

E4 Employability

- E4.1 Explain the value of applying a problem-solving system
- E4.2 Apply a system of problem solving
- E4.3 Identify opportunities for applying problem solving techniques

V. Quality Assurance

E5 Employability

- E5.1 Explain the effect of quality on profit
- E5.2 Identify the effects of continuous quality improvement
- E5.3 Identify your customers

O5 Occupational

- O5.1 Identify customer problems
- O5.2 Determine causes of the problem
- O5.3 Apply problem-solving system
- O5.4 Recommend possible solutions
- O5.5 Define SPC
- O5.6 Define international quality standards and systems such as ISO/QS 9000

VI. Blueprint Reading

O6 Occupational

- O6.1 Define basic blueprint terminology
- O6.2 Interpret commonly used abbreviations and terminology
- O6.3 Identify types of lines within a drawing

VII. Business Planning and Operations

A7 Academic

- A7.1 Identify the organizational need for profit
- A7.2 Define the term “profit”

E7 Employability

- E7.1 Identify the components that lead to customer satisfaction
- E7.2 Identify possible actions that may lead to customer dissatisfaction
- E7.3 Identify the ways that the level of customer satisfaction may affect company success
- E7.4 Explain the importance of a business reputation
- E7.5 Identify the ways that customer satisfaction influences a business reputation

VIII. Workforce Issues

E8 Employability

- E8.1 Recognize the difference between a team environment workplace and a conventional workplace
- E8.2 Identify the characteristics of a diverse work force
- E8.3 Identify good ethical characteristics and behaviors
- E8.4 Demonstrate good ethical characteristics and behaviors
- E8.5 Differentiate between good and poor business ethics practices
- E8.6 Match employee responsibilities to employer expectations
- E8.7 Define discrimination, harassment and equity
- E8.8 Demonstrate non-discriminatory behavior
- E8.9 Maintain confidentiality and sensitivity of company information

IX. Workplace Skills

E9 Employability

- E9.1 Demonstrate consistently punctual arrival
- E9.2 Document regular attendance
- E9.3 Demonstrate enthusiasm and confidence about work and learning new tasks
- E9.4 Demonstrate appropriate dress and hygiene for successful employment
- E9.5 Demonstrate the ability to act in a polite and respectful way towards co-workers
- E9.6 Demonstrate the ability to complete tasks on time and accurately
- E9.7 Demonstrate the ability to make career decisions
- E9.8 Prepare a resume and letter of application or interest
- E9.9 Fill out an application for employment
- E9.10 Participate in an employment interview
- E9.11 Follow directions and procedures
- E9.12 Be truthful in all communications with co-workers and supervisors
- E9.13 Accept constructive criticism
- E9.14 Demonstrate an ability to learn new skills and behaviors
- E9.15 Demonstrate a willingness to work
- E9.16 Demonstrate a willingness to learn
- E9.17 Work with minimal supervision
- E9.18 Plan and organize work

O9 Occupational

- O9.1 Demonstrate safe, careful use, treatment and maintenance of tools, equipment, and machines
- O9.2 Demonstrate basic mechanical skills

X Learning Skills

A10 Academic

- A10.1 Identify personal preferred learning styles
- A10.2 Demonstrate ability to learn new process steps
- A10.3 Implement new process steps given oral instructions
- A10.4 Read process instructions and implement appropriate steps

O10 Occupational

- O10.1 Participate in product or process specific training and report significant information



Kentucky Manufacturing Skill Standards

Level 2 -- Advanced



Measurement of Success

Manufacturing Skill Standards

Level 2 -- Advanced

I. Communication and Teamwork

AA1 Academic

- AA1.1 Identify interpersonal characteristics of a team player
- AA1.2 Demonstrate the characteristics of a team player
- AA1.3 Contrast the role of a team with the role of an individual
- AA1.4 Perform techniques used as a team leader
- AA1.5 Demonstrate productive relationships within the work group
- AA1.6 Organize and deliver a persuasive oral presentation
- AA1.7 Demonstrate good speaking characteristics
- AA1.8 Demonstrate appropriate presentation demeanor
- AA1.9 Understanding basic leadership skills

AE1 Employability

- AE1.1 Identify possible electronic communication methods
- AE1.2 Explain the effect of electronic communications versus other communication methods
- AE1.3 Select appropriate communication methods
- AE1.4 List the characteristics of a good group leader
- AE1.5 Identify various group processes
- AE1.6 Identify components of group dynamics
- AE1.7 Demonstrate group leadership
- AE1.8 Apply facilitation skills in a group setting

AO1 Occupational

- AO1.1 Apply group dynamic principles to manufacturing situations

II. Math and Measurement

AA2 Academic

- AA2.1 Distinguish between direct and calculated measurements
- AA2.2 Compute calculated measurements

AO2 Occupational

- AO2.1 Describe measurements' role in manufacturing
- AO2.2 Demonstrate proper precision measurement techniques
- AO2.3 Describe the appropriate application and use of precision measurements in manufacturing
- AO2.4 Explain calibration requirements of various precision instruments
- AO2.5 Illustrate measurement differences when taken with calibrated and non-calibrated instruments
- AO2.6 Match appropriate measurement tools with various types of measurement requirements
- AO2.7 Demonstrate proper measurement tool usage
- AO2.8 State selection criteria for measurement tools
- AO2.9 Interpret results of measurements and calculations
- AO2.10 List steps with rationale of proper measurement procedures
- AO2.11 Distinguish between general and precision measurement

III. Workplace Safety and Health

AO3 Occupational

- AO3.1 Possess valid first aid card
- AO3.2 Determine need for CPR and administer as appropriate
- AO3.3 Apply appropriate first aid techniques
- AO3.4 Define different types of chemical, biological, and physical hazards

IV. Quality Assurance

AO4 Occupational

- AO4.1 Contrast quality manufacturing systems with other manufacturing systems
- AO4.2 Identify influences of quality systems on specific manufacturing processes
- AO4.3 Demonstrate the ability to apply continuous quality improvement to manufacturing processes
- AO4.4 Demonstrate the ability to apply Failure Mode and Effect Analysis (FMEA) to manufacturing processes
- AO4.5 Demonstrate the ability to apply Quality Function Development (QFD) methods to manufacturing processes
- AO4.6 Integrate improvement processes
- AO4.7 Identify the relationship between SPC steps and specific production processes
- AO4.8 Apply SPC to specific production processes
- AO4.9 Analyze production specific processes
- AO4.10 Analyze and interpret test data for compliance to specifications
- AO4.11 Improve production process (if indicated by analysis of data)
- AO4.12 Classify customer problems
- AO4.13 Develop a plan utilizing a selected quality control system
- AO4.14 Evaluate process selected versus goals
- AO4.15 Apply advanced problem-solving techniques

V. Blueprint Reading

AO5 Occupational

- AO5.1 Identify different types of dimensions
- AO5.2 Identify general note symbols
- AO5.3 Locate notes on a print
- AO5.4 Determine tolerances associated with dimensions on a drawing
- AO5.5 Determine the tolerance for a reference dimension
- AO5.6 List the essential components found in the title block
- AO5.7 List the essential components found in the revision block
- AO5.8 Identify orthographic views
- AO5.9 Identify isometric views
- AO5.10 Identify position of views (top, front, side and auxiliary)
- AO5.11 Visualize one or more views from a given view
- AO5.12 Determine the scale of the view or section
- AO5.13 Check for revisions

VI. Manufacturing Fundamentals

AO6 Occupational

- AO6.1 Describe the importance of correct fixturing and work holding devices
- AO6.2 Identify a variety of common machine tools
- AO6.3 Describe the function of specific machine tools
- AO6.4 Inspect machine tools for defects
- AO6.5 Interpret prints to determine appropriate tool usage
- AO6.6 Follow electrical troubleshooting procedures
- AO6.7 Identify types of work-saving devices used in manufacturing
- AO6.8 Describe scenarios in which work-saving devices can be used

VII. Business Planning and Operation

A07 Occupational

- AO7.1 Identify opportunities for profit in manufacturing processes
- AO7.2 Identify possible barriers to profit in manufacturing process
- AO7.3 Identify strategies that may maximize profit potential in manufacturing processes
- AO7.4 Recognize a business plan that provides for an acceptable profit
- AO7.5 Define a safe work environment
- AO7.6 Define the term value added
- AO7.7 Identify steps within manufacturing processes that determine cost

AE7 Employability

- AE7.1 Identify possible actions that may be used to correct customer dissatisfaction
- AE7.2 Identify immediate and real costs of an accident
- AE7.3 Identify methods of preventing accidents in the workplace

VIII. Computer Use

AA8 Academic

- AA8.1 Demonstrate use of an industry-accepted word processing software package

AO8 Occupational

- AO8.1 List possible computer applications in manufacturing processes
- AO8.2 Identify possible effects of introducing computers into manufacturing processes
- AO8.3 List various methods of tracking inventory quantities
- AO8.4 List factors that determine inventory demand
- AO8.5 Demonstrate use of an industry-accepted spreadsheet software package
- AO8.6 Demonstrate use of an industry-accepted database software package
- AO8.7 Demonstrate use of an industry-accepted statistical processing software package
- AO8.8 Demonstrate use of an industry-accepted graphic software package

IX. Product and Process Control

AO9 Occupational

- AO9.1 List a variety of process control applications
- AO9.2 Collect and analyze information to determine and improve work processes
- AO9.3 Explain the advantages and disadvantages of just-in-time inventory
- AO9.4 Create a project plan

X. Workforce Issues

AO10 Occupational

- AO10.1 Explain how organizational structure affects a manufacturing process.

