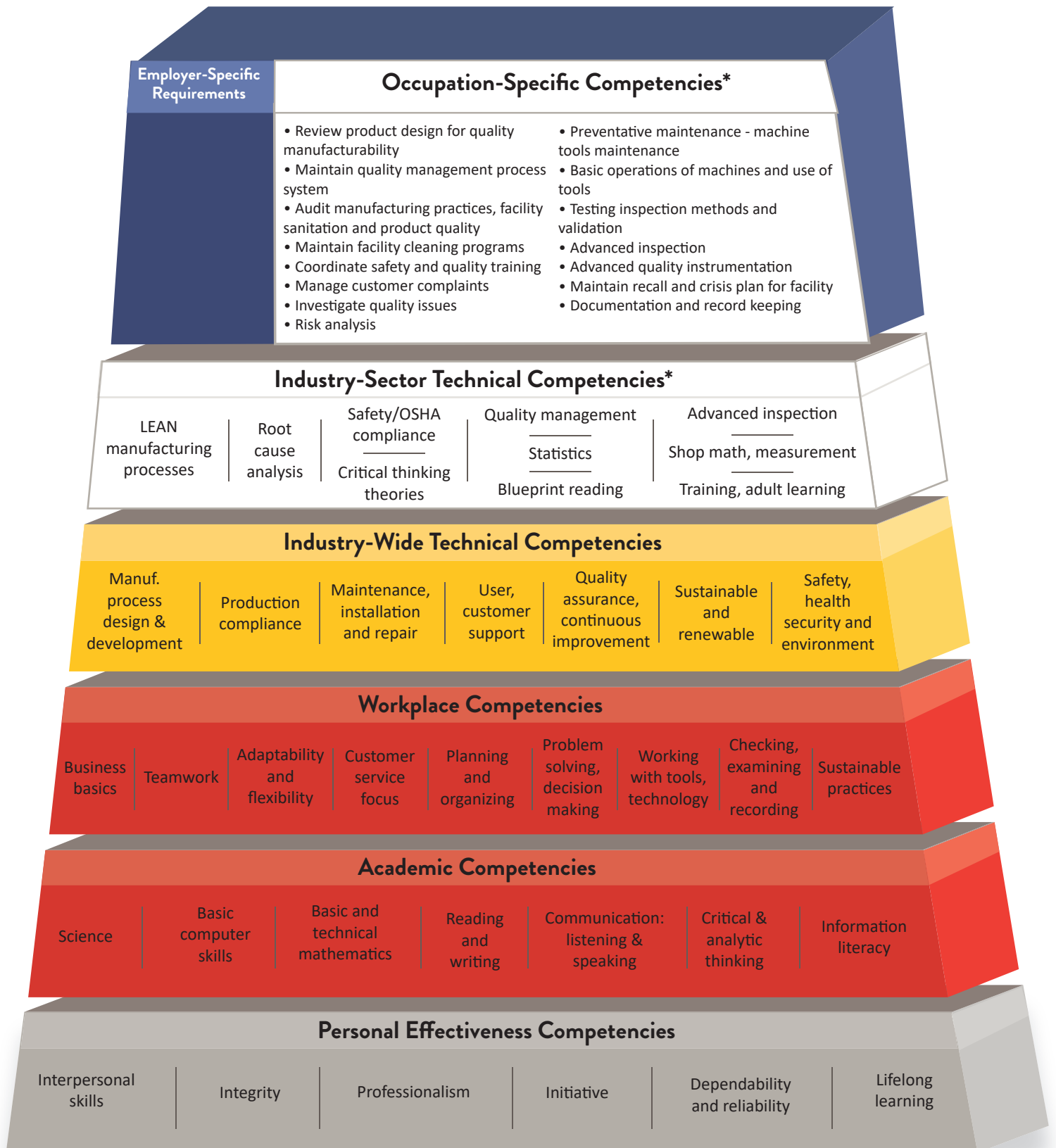


Minnesota Dual-Training Pipeline

Competency Model for Advanced Manufacturing

Occupation: Quality Assurance Technician



Based on: Advanced Manufacturing Competency Model Employment and Training Administration, U. S. Dept. of Labor, April 2010.

*Minnesota Dual-Training Pipeline recommends the Industry-Sector Technical Competencies as formal training opportunities (provided through related instruction) and the Occupation-Specific Competencies as on-the-job training opportunities.

Competency Model for Advanced Manufacturing

Quality Assurance Technician

A quality assurance technician manages the quality assurance for a manufacturing company, developing, applying and maintaining quality requirements for processing components and other materials into finished goods and products. This includes reviewing product designs for manufacturability, maintaining documentation regarding quality management, continuous improvement, investigating quality issues, root cause analysis, testing and inspection, risk analysis, LEAN principles, management principles and training/adult learning.

Industry-Sector Technical Competencies

- Training/Adult Learning – Understand how to effectively train and present material to adult learners.
- Blueprint reading – Demonstrate basic understanding of reading and understanding industrial prints such as GD&T.
- Shop Math and Measurement – Demonstrate basic understanding of math including linear measurement, metrics and beginning algebra, as well as SPC (statistics) used for data collection.
- Advanced Inspection – Able to use measuring instruments relating to state-of-the-art manufacturing environments, such as coordinate measuring machine and calibration. Understanding of Quality Control, TQM, and SPC processes as they relate to manufacturing environments.
- Critical Thinking Theories – theories that encapsulate the objective analysis of facts to form a judgment. A Quality Assurance Technician would need this ability and the understanding of the theories to approach several different quality assurance processes holistically.
- Root Cause Analysis – a method of problem solving used for identifying the root causes of faults or problems. The analysis could also suggest methods of addressing problems at their source.
- Safety/ OSHA Compliance – the process and systems to ensure compliance with the occupational safety and health act and overall safety of operations.
- Quality management – Know how to oversee the systems in place at a facility that are directly connected to quality assurance practices of the facility.
- Statistics – Utilizing mathematics to deal with the collection, analysis, interpretation, presentation, and organization of data as it relates to consistency of high-quality product standards being met for production.
- LEAN Manufacturing Processes – a systematic method for waste minimization within a manufacturing system without sacrificing productivity; considers waste created through overburden and waste created through unevenness of workload

Occupation-Specific Competencies

- Review product design for quality manufacturability - Be involved with the design process of the product development to ensure that the production facility will have capacity to build the product and ensure its consistent set of quality standards.
- Maintain Quality Management Process System – Establish and maintain a routine and consistent approach to quality assurance and quality management
- Audit Manufacturing Practices, Facility Sanitation and Product Quality – Demonstrate the ability to regularly scrutinize and audit facility practices in manufacturing and sanitation/cleanliness as well as to ensure that products are consistently meeting a set standard.
- Maintain Facility Cleaning Programs – Demonstrate the ability to establish a regular schedule of cleaning and maintaining machinery and work areas
- Coordinate Safety and Quality Training – Establish and maintain the timing and delivery of training for team members to ensure safety on the job and training for team members to take the time to create quality products
- Manage Customer Complaints – Demonstrate a strong, steam-lined approach to providing excellent customer service, especially to customers with complaints or issues; demonstrate the ability to establish a training plan for team members to do the same.
- Investigate Quality Issues – Demonstrate the ability to independently research possibly quality issues with product or process
- Preventative Maintenance - Machine Tools Maintenance – Practice industry approved procedures for preventative maintenance on quality machines and tools.
- Basic Operations of Machines and Use of Tools – Demonstrate basics understanding of how, when, and why to use specific machines and tools
- Testing inspection methods and validation – Demonstrate the proper methods and instruments used to effectively inspect parts and completed products meeting a defined set of standards in the shop
- Advanced Inspection – Understanding of Quality Control, TQM, and SPC processes as they relate to manufacturing environments.
- Advanced Quality Instrumentation – Demonstrate ability to use precise measuring and data collection tools to ensure product quality standards are met.
- Risk Analysis – Demonstrate how to determine how the production of a product may result in safety concerns and plan accordingly to mitigate those concerns.
- Maintain Recall and Crisis Plan for Facility – Demonstrate the ability to establish and maintain the process when a facility needs to react to crisis or carry out a product recall.
- Documentation/ record keeping – Understand how maintain a history of product quality control measures by writing down and/or saving via computer a record of what errors occur on parts and products.

Quality Assurance Technician Occupational Training Plan

Related Instruction means an organized and systematic form of instruction designed to provide the apprentice with the knowledge of the theoretical and technical subjects related to the apprentice's trade of occupation, or industrial courses or, when of equivalent value, by correspondence, electronic media, or other forms or self-study approved by the commissioner.

	Course	Course Description	Credit/Non-Credit	Hours Spent on Competency
	Training/ Adult learning			
	Blueprint reading			
	Shop math and measurement			
	Advanced inspection			
	Critical thinking theories			
	Root cause analysis			
	Safety/ OSHA compliance			
	Statistics			
	LEAN manufacturing processes			
	Quality management			

On-The-Job Training is the work experience and instruction. Training experience need not be in the exact order as listed below.

	Trainer/Instructor	Name of person responsible for verifying competency mastery	Hours spent on competency
	Review product design for quality manufacturability		
	Maintain quality management process system		
	Audit manufacturing practices, facility sanitation and product quality		

Maintain facility cleaning programs			
Coordinate safety and quality training			
Manage customer complaints			
Investigate quality issues			
Preventative maintenance- Machine tools maintenance			
Basic operations of machines and use of tools			
Testing inspection methods and validation			
Advanced inspection			
Advanced quality instrumentation			
Risk analysis			
Maintain recall and crisis plan for facility			
Documentation and record keeping			