Manufacturing

Pathway: Health, Safety and Environmental Assurance

Code	Topic	Course	Knowledge and Skill	Performance Element	Measurement Criteria
MNPF01.01	Equipment Safety	#3: Employment in Manufacturing Occupations #5: Safety in the Workplace	Ensure that equipment is being used safely in the workplace.	Train others to use equipment safely.	Give new operators a complete orientation of equipment.
					Make sure that all important information regarding equipment safety is communicated clearly and effectively.
					Make sure that maintenance workers obtain certification to train others in technical skills and knowledge where applicable.
					Make suggestions regarding training materials and content to appropriate parties.
					Use evaluations and feedback to improve training materials and methods.
					Make sure trainees have the correct tools to do the job during training
					Conduct post-training evaluation to assure that workers can operate equipment safely.
					Use training and facilitation techniques appropriate for the audience.
					Document the quality and effectiveness of training appropriately.
				Suggest processes and procedures to support safety and effectiveness in the work environment.	Consult health and safety representatives to develop suggestions.
					Solicit operator feedback for use in creating a safer, more effective work environment.
					Make sure suggestions for training improvement are documented and sent to the appropriate parties.
					Make sure that content of suggestions addresses safety, quality, and productivity issues.

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Code	Topic	Course	Knowledge and Skill	Performance Element	Measurement Criteria
			(CONTINUED)	Fulfill safety and health requirements for maintenance, installation, and repair.	Make regular safety communications to all employees.
					Review job safety analyses regularly according to company policy.
					Accurately follow hazardous materials procedures and policies such as Material Safety Data Sheet and “right to know.”
					Perform environmental testing of workplace on a regular basis as required by company policy or regulation.
					Audit equipment to ensure there are no by-passes of safety guards.
					Verify that regulatory and company safety procedures are followed including lock-out & tag-out, confined space, and ergonomics.
					Follow good housekeeping procedures.
					Verify that safety and personal protective equipment is available, performs correctly, and has current certification.

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Code	Topic	Course	Knowledge and Skill	Performance Element	Measurement Criteria
			(CONTINUED)	Monitor equipment and operator performance to assure workplace safety and compliance with both company and national regulations.	Perform monitoring responsibilities regularly.
					Report out-of-compliance or unsafe conditions immediately.
					Take corrective action on out-of-compliance or unsafe conditions.
					Check equipment to ensure it is operating according to specifications.
					Check tools for compliance with specifications.
					Forward accident and injury data to appropriate personnel for inclusion in OSHA recordables.
					Gather information on equipment use from operators to reveal existing or potential problems.
					Adjust equipment and processes as required.
					Document all monitoring data accurately.
MNPF02.01	Planning	#5: Safety in the Workplace #6: Compliance Policies and Procedures	Plan for safety in new production processes.	Report hazards and problems.	Identify hazards and problems correctly.
					Document hazards and problems properly.
					Follow policy and procedure to report hazards and problems.
					Communicate problems, hazards, and alerts promptly to appropriate parties.
					Make sure that incident and accident reports are complete, accurate, and available to relevant parties.

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Code	Topic	Course	Knowledge and Skill	Performance Element	Measurement Criteria
			(CONTINUED)	Ensure adherence to policies and procedures.	Train employees properly in all safety procedures.
					Enforce company policies and procedures consistently according to the company policies and procedures.
					Make sure that safety policies are clear.
					Post safety policies properly.
					File safety violation reports and forms in a timely way.
					Conduct follow-up on safety violation reports and forms.
					Make sure that documentation of enforcement action is complete, clear, and conforming to regulatory requirements.
				Take corrective action regarding safety policies and procedures.	Make sure that corrective actions regarding safety are correct and complete.
					Make sure that when corrective actions are necessary that they are communicated clearly and appropriately to others.
					Take corrective actions immediate after discovery of safety hazard or problem.
					Make sure that follow-up occurs after corrective action takes place to ensure safe behavior is being exhibited.
				Document hazards and problems.	Make sure that documentation meets all regulations.
					Make sure that documentation is clear, accurate, and legible.
					Make sure that documentation is filed and accessible by relevant parties.
					Make sure that documentation is completed and updated in a timely way.

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Code	Topic	Course	Knowledge and Skill	Performance Element	Measurement Criteria
			(CONTINUED)	Implement safety programs.	Make sure that new equipment conforms to safe manufacturing practices.
					Use lock-out/tag-out procedures properly.
					Evaluate product handling for physical safety concerns.
					Include safety features in product design.
MNPF03.01	Investigations	#6: Compliance Policies and Procedures #7: Creating a Safe Environment	Conduct health, safety, and/or environmental incident and hazard investigations.	Investigate health safety, and/or environmental incidents.	Follow the procedures established for investigations.
					Use root cause analysis to identify factors contributing to the incident.
					Use a standard procedure to interview all relevant parties in an impartial and tactful manner.
					Report investigation findings in a timely manner.
					Include relevant experts as needed in the incident investigation.
				Investigate health, safety, and/or environmental hazards.	Identify potential safety hazards promptly.
					Use established procedures to correct the hazard and report to correct parties for immediate attention.
					Complete documentation where appropriate and forward to correct parties.
				Document findings of health, safety, and/or environmental investigations.	Complete documentation accurately and submit to correct parties in a timely manner.
					Use appropriate procedures to include conclusions and recommended corrective action.
					Verify that documentation meets all applicable laws and regulations.
					Verify that documentation includes all necessary signatures.

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Code	Topic	Course	Knowledge and Skill	Performance Element	Measurement Criteria
			(CONTINUED)	Suggest corrective actions.	Make recommendations based on solid data and root cause analysis.
					Document suggested actions appropriately and communicate them to the appropriate parties in a timely manner.
					Use the findings of the investigation to prepare suggested actions.
				Check that appropriate action has been taken to correct health safety, and/or environmental problems.	Update safe operating procedures in a timely manner.
					Complete safety work orders in a timely manner.
					Develop and deliver worker training if required.
					Analyze incident rates to determine if corrective action was effective.
					Complete follow-up investigation to ensure that corrective action is taken and root cause is addressed.
MNPF04.01	Inspections	#6: Compliance Policies and Procedures #7: Creating a Safe Environment	Conduct preventive health, safety, and/or environmental incident and hazard inspections.	Check health safety, and/or environmental inspections.	Make sure that audit records and documentation are complete and available.
					Use procedures established to conduct audits.
					Complete documentation related to audit accurately.
					Use appropriate forums and format to report audit documentation.
					Arrange for relevant experts in situations needing additional credibility on an as-needed basis.
					Verify that audit was effective at identifying compliance and non-compliance issues.

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Code	Topic	Course	Knowledge and Skill	Performance Element	Measurement Criteria
			(CONTINUED)	Document inspection findings.	Complete inspection reports accurately.
					Verify that corrective action reports or logs exist.
					Submit documentation to correct parties according to schedule.
					Verify that documentation includes all relevant information.
				Conduct area health safety, and/or environmental inspections.	Make sure that area inspection documentation is complete and available.
					Use procedures established to conduct area inspections.
					Use an appropriate forum and format to report area inspection documentation.
					Verify that inspections are thorough, timely and cover all relevant aspects of health safety, and/or environmental concerns.
					Verify that inspection includes visual inspections as well as information gathered directly from workers.
					Arrange for relevant experts in situations needing additional credibility on an as-needed basis.
				Submit inspection and audit findings to correct parties.	Verify that record of transmittal of inspection and audit findings is complete, accurate, and includes all necessary signatures.
					Verify that inspection and audit findings are on file.
					Post inspection and audit findings appropriately to ensure their accessibility to all relevant parties.
				Regularly check job safety analysis against actual experience.	Conduct verification according to approved schedule.
					Do the verification on the basis of the existing data.
					Verify that compliance rate reports are on file.

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Code	Topic	Course	Knowledge and Skill	Performance Element	Measurement Criteria
MNPF05.01	Compliance	#6: Compliance Policies and Procedures #7: Creating a Safe Environment	Implement health, safety, and/or environmental programs, projects, policies, or procedures.	Document regulatory compliance.	Use approved schedules and specifications to complete regulatory compliance activities.
					Verify that compliance documentation meets all regulatory, legal, and company standards.
					Verify that the current list of applicable regulations is accessible to all parties as required.
					Verify that compliance documentation is on file and accessible to all relevant parties.
					Maintain a system for filing the sign-off sheets for compliance.
				Communicate company health, safety, and environmental policies and procedures.	Make health, safety, and environmental policies appropriately visible in the workplace.
					Use multiple methods to communicate policies and procedures.
					Maintain records of worker notification of policies and procedures on file.
					Deliver communication to correct parties in a timely manner.
					Obtain feedback from workers to determine effectiveness of communications.
					Use worker feedback to modify communication methods.

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Code	Topic	Course	Knowledge and Skill	Performance Element	Measurement Criteria
			(CONTINUED)	Stop unsafe work practices.	Modify manufacturing process to attain adequate levels of safety.
					Correct unsafe behavior immediately and communicate to correct parties.
					Use appropriate forum and format to document notice of unsafe practices.
					Use preventive maintenance or departmental safety audits to record corrective action for unsafe work practices.
					Update safety policies on a regular basis.
					Determine if observations and review of safety records show reduction in targeted injuries or unsafe behaviors.
					Give priority to avoiding unsafe practices when planning new manufacturing processes.
				Suggest solutions that will eliminate unsafe practices.	Make sure all relevant parties are included in the development of safety solutions.
					Schedule follow-up meetings that include all appropriate parties to discuss solutions.
					Test and revise proposed solution(s) as necessary.
					Document suggestions and forward to correct parties.

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Code	Topic	Course	Knowledge and Skill	Performance Element	Measurement Criteria
			(CONTINUED)	Report violations to appropriate authorities.	Keep violation reports, including disciplinary action where appropriate, on file.
					Distribute violation reports to the responsible party.
					Follow the legal, regulatory and company policy to communicate violations to the proper authorities.
					Use the chain of command to ensure that corrective action is taken.
					Use the appropriate channels to report health, safety, and environmental concerns.
				Prepare for health, safety, and environmental emergencies.	Develop employee and fire emergency plans before emergencies occur.
					Implement employee and fire emergency plans during an emergency.
					Verify that emergency equipment is available and in working order.
					Take necessary action to ensure that employees are properly trained in emergency procedures.
					Use company policies and procedures to complete emergency drills.

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Code	Topic	Course	Knowledge and Skill	Performance Element	Measurement Criteria
MNPF06.01	Continuous Improvement	#8: Sustaining a Safe Environment	Implement continuous improvement in health, safety, and/or environmental practices.	Analyze root causes or problems and prioritize problems that need to be addressed first.	Identify, document, and communicate priorities clearly.
					Use appropriate data to prioritize goals and problems.
					Use specific situations to base selection of appropriate data analysis methods.
					Complete data analysis documentation accurately.
					Use input from workers and management to determine priorities.
				Analyze health, safety, and/or environmental data.	Verify that analysis contains sufficient detail to meet applicable standards.
					Complete documentation of analysis accurately.
					Make raw data available for inspection.
					Compare company's health, safety, and/or environmental assurance trends against industry health, safety, and/or environmental trends.
					Forward analysis to correct parties.
					Select appropriate analysis methods and use them properly.
					Use appropriate and accurate metrics and/or develop them for use in the analysis.
					Use charts, graphs, or tables to communicate data in written conclusions and plans.
				Determine projects to address priorities.	Design projects to support and reinforce established company goals.
					Take necessary action to involve all relevant parties in the development of the project.
					Use scheduling methods to ensure timely development.
					Verify that project plans are complete, detailed and include the resource requirements.

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Code	Topic	Course	Knowledge and Skill	Performance Element	Measurement Criteria
			(CONTINUED)	Benchmark health, safety, and/or environmental practices.	Gather appropriate information from recognized industry leaders.
					Arrange for independent evaluations of worksite health, safety, and/or environmental assurance practices.
					Use benchmarking information as a basis for making recommendations.
					Conduct and document analysis comparing current practice against benchmark data.
					Use a variety of means to gather information regarding excellent health, safety, and/or environmental assurance practices.
				Maintain knowledge of policies and procedures for health, safety, and/or environmental issues.	Attend workshops, conferences, and other career development sessions.
					Take action to ensure that involvement in a professional society relevant to job activities is ongoing.
					Take action to ensure that up-to-date resources on health, safety, and/or environmental assurance are accessible to all relevant parties.
MNPF07.01	Promotion	#9: Health, Safety and Environmental Promotion and Training	Promote health, safety, and/or environmental assurance programs.	Be an advocate for workplace safety.	Make workplace safety posters and other relevant information visible.
					Identify, model, recognize, and publicize manufacturing practices for health, safety, and/or environmental assurance.
					Make sure that workers responsible for health, safety, and/or environmental assurance are regularly present in manufacturing workplace to encourage good health, safety, and/or environmental assurance practices.

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Code	Topic	Course	Knowledge and Skill	Performance Element	Measurement Criteria
			(CONTINUED)	Suggest health, safety, and/or environmental assurance programs to management and other workers.	Keep materials supporting health, safety, and/or environmental assurance programs on file.
					Document suggestions supporting health, safety, and/or environmental assurance.
					Forward suggestions supporting health, safety, and/or environmental assurance to all relevant parties.
					Make suggestions based on an accurate assessment of employee needs and interests, requirements in the workplace, and business objectives.
					Discuss data and statistical analysis with decision-makers.
					Hold meetings to advocate for health, safety, and/or environmental assurance programs with all relevant parties.
					Use various methods to market benefits of high quality suggestions supporting health, safety, and/or environmental assurance programs.
				Evaluate health, safety, and/or environmental assurance programs.	Continuously maintain, evaluate, and report recordable incidents of injury and other incidences of health, safety, and/or environmental assurance.
					Maintain a log of health, safety, and/or environmental assurance information.
					Communicate evaluations to correct parties in a timely manner.
					Use evaluations to improve the outcomes of health, safety, and/or environmental assurance programs.
					Keep self-assessment studies on health, safety, and/or environmental assurance programs on file.
					Compare health, safety, and/or environmental assurance statistics with industry benchmarks or standards.

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Code	Topic	Course	Knowledge and Skill	Performance Element	Measurement Criteria
			(CONTINUED)	Educate others about the benefits of health, safety, and/or environmental assurance programs.	Design or purchase materials supporting health, safety, and/or environmental assurance programs that are clear and appropriate for the intended audience.
					Keep health, safety, and/or environmental assurance materials on file and accessible.
					Hold meetings to educate individuals about health, safety, and/or environmental assurance programs with all relevant groups.
					Use various methods to advertise benefits for and elements of high quality health, safety, and/or environmental assurance programs.
					Use various methods to educate new hires about the company's commitment to safety.
					Provide continuing education to employees.
					Make sure that education activities include cost-benefit analysis of workers' compensation programs.

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Code	Topic	Course	Knowledge and Skill	Performance Element	Measurement Criteria
			(CONTINUED)	Conduct activities that educate others about the benefits of workplace health, safety, and/or environmental assurance programs.	Design or purchase materials supporting health, safety, and/or environmental assurance programs that are clear and appropriate for the intended audience.
					Verify that health, safety, and/or environmental assurance materials are on file and accessible.
					Hold meetings with all relevant groups to educate individuals about health, safety, and/or environmental assurance programs.
					Use various methods to advertise benefits for and elements of high quality suggestions supporting health, safety, and/or environmental assurance programs.
					Use appropriate methods to educate new hires about the company's commitment to safety.
					Provide continuing education to employees.
					Include cost-benefit analysis of workers' compensation programs in education activities.

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Code	Topic	Course	Knowledge and Skill	Performance Element	Measurement Criteria
MNPF08.01	Analysis	#8: Sustaining a Safe Environment	Conduct job safety and health analysis for jobs, equipment, and processes.	Consult with outside sources about health, safety, and/or environmental assurance aspects of jobs.	Maintain an accurate list of relevant outside sources.
					Make postings of current emergency contact information accessible to all relevant parties.
					Maintain a contact log.
				Participate in the development of job safety analysis.	Hold meetings to conduct job safety analysis with all relevant parties.
					Generate suggestions for job safety improvements.
					Document and analyze relevant data.
					Hold one-on-one and small group meetings with workers to identify job safety issues.
					Make observations at worksites on a regular basis to gather information for job safety analysis.
				Gather information from employees about occupational hazards.	Observe employees on a regular basis for safe work behaviors and practices.
					Maintain records of employee interviews regarding occupational hazards.
					Publish and distribute safety reports and statistics to relevant parties.
					Provide a method for employees to report safety concerns to relevant parties.
				Suggest ways to eliminate hazards.	Keep suggestions on file for eliminating the hazard.
					Complete safety-related work orders in a timely manner.
					Communicate suggestions to correct parties.
					Make suggestions that are relevant and appropriate.

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Code	Topic	Course	Knowledge and Skill	Performance Element	Measurement Criteria
			(CONTINUED)	Regularly verify job safety analysis against experience.	Evaluate job safety analysis with relevant injury and worksite data.
					Interview employees to gain their input.
				Conduct activities that educate others about the benefits of workplace health, safety, and/or environmental assurance programs.	Design or purchase materials supporting health, safety, and/or environmental assurance programs that are clear and appropriate for the intended audience.
					Verify that health, safety, and/or environmental assurance materials are on file and accessible.
					Hold meetings with all relevant groups to educate individuals about health, safety, and/or environmental assurance programs.
					Use various methods to advertise benefits for and elements of high quality suggestions supporting health, safety, and/or environmental assurance programs.
					Use appropriate methods to educate new hires about the company's commitment to safety.
					Provide continuing education to employees.
					Include cost-benefit analysis of workers' compensation programs in education activities.

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Code	Topic	Course	Knowledge and Skill	Performance Element	Measurement Criteria
MNPF09.01	Safety	#3: Employment in Manufacturing Occupations #5: Safety in the Workplace #6: Compliance Policies and Procedures #7: Creating a Safe Environment #8: Sustaining a Safe Environment #9: Health, Safety and Environmental Promotion and Training	Maintain a safe and productive workplace.	Follow local, federal and company regulations to perform environmental and safety inspections.	Identify, report and monitor potential hazards in the workplace.
					Take corrective action to correct potential hazards.
					Review health, safety, and environmental documentation and policies thoroughly and regularly.
					Ensure that inspections meet all relevant, health, safety, and environmental laws and regulations.
					Complete inspections according to company schedule and procedures.
					Document inspection records and store them correctly.
				Participate in emergency response teams to perform emergency drills.	Confirm that first aid training and certification on emergency and first aid procedures are complete and up-to-date.
					Comply with company and regulatory policies and procedures to respond to emergencies.
					Document emergency drills and incidents according to company and regulatory procedures promptly.

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Code	Topic	Course	Knowledge and Skill	Performance Element	Measurement Criteria
			(CONTINUED)	Identify unsafe conditions and take corrective action.	Identify, report, and document conditions presenting a threat to health, safety, and the environment.
					Identify corrective actions.
					Consult appropriate parties about corrective actions and promptly take corrective actions following company procedures.
					Track and report ongoing safety concerns until corrective action is taken.
				Provide safety orientation to train other employees in safe practices and emergency procedures.	Verify that all topics and procedures are covered in orientation to facilitate employee safety.
					Observe orientation to ensure that it makes clear the need and processes for employees to raise safety concerns, ask questions, and receive additional training.
					Use company requirements to document orientation.
					Verify that orientation meets all relevant laws, policies, and regulations.
					Deliver safety instruction and updates on a regular schedule.
MNPF10.01	Training	#9: Health, Safety and Environmental Promotion and Training	Train workers in health, safety, and/or environmental issues.	Determine priorities for health, safety, and/or environmental training needs.	Conduct analysis of health, safety, and/or environmental tasks at the job level.
					Analyze health, safety, and/or environmental records to identify training needs.
					Document results of training assessments.
					Use the analysis to develop training plans with clear objectives.
					Solicit worker input regarding training needs.

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Code	Topic	Course	Knowledge and Skill	Performance Element	Measurement Criteria
			(CONTINUED)	Prepare health, safety, and/or environmental training materials.	Use appropriate resources to ensure that content included in training materials meets industry, government, and company standards.
					Work with appropriate personnel to ensure that the training materials includes the correct content to meet the training needs.
					Develop and implement a system to ensure that training materials are updated continuously.
					Work with appropriate personnel and outside sources as needed to make sure that training materials are clear, worker-friendly, and appropriate for the audience.
					Develop and implement a system to ensure that training materials are available and accessible to all relevant parties.
				Conduct health, safety, and/or environmental training for employees.	Document employee records to show that training has been delivered.
					Develop a training schedule that facilitates participation of employees.
					Develop evaluations that indicate workers' understanding of the training materials.
					Develop a system for verifying that appropriate workers receive training.
					Show how test results and certifications achieved indicate effective training.

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Code	Topic	Course	Knowledge and Skill	Performance Element	Measurement Criteria
			(CONTINUED)	Document required health, safety, and/or environmental training.	Maintain training attendance records on file.
					Develop and maintain a training profile for each job.
					Maintain accurate records of test results and certifications achieved.
					Make documentation available on an as-needed basis to appropriate parties.
					Request feedback from trainees and document feedback that is received.
					Maintain confidentiality of the outcomes of the health, safety, and/or environmental assurance training.
				Plan future health, safety, and/or environmental training.	Make sure that appropriate content is included in training plans.
					Design training for the specific needs of individuals.
					Ask appropriate workers for input related to the content of the training.
					Design training plan to include effective evaluation and follow-up process.
					Include worker feedback when developing future training.
		Additional Recommended CTE/Degree Major Course: #4: Applications in Manufacturing Technology			

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