

Improve the quality of engineering products or processes

Overview

This standard identifies the competences you need to implement quality improvements to engineering products or processes, in accordance with approved procedures. The range of engineering processes could include manufacturing operations, installation, production, maintenance, engineering support functions or other activities, such as performance measurement or business improvement. You will be required to plan and implement quality improvements, obtaining all the necessary information to enable you to evaluate and provide solutions to problems, and to assess their effects on both the engineering product and the processes involved. You will also be expected to control resources and to ensure effective implementation of quality improvements. In addition, you will keep all the relevant people associated with the engineering process informed of the quality improvements as they are implemented.

Your responsibilities will require you to comply with organisational policy and procedures for implementing quality improvements, and to report any problems that you cannot personally resolve to the relevant authority. You will be expected to work unsupervised, either on your own or as part of a team, which you may lead or direct, taking full responsibility for your actions, and possibly for the work of colleagues or subordinates.

Your underpinning knowledge will provide a good understanding of general and discipline-specific engineering principles and processes. You will be fully conversant with organisational procedures and systems. You will apply quality assurance principles and systems to ensure that the required specifications, details and formats are maintained. You will also know about evaluation methods, resource management and project planning, in adequate depth to provide a sound basis for carrying out the improvements to the required standard.

You will be fully aware of any health, safety and environmental requirements, and the appropriate legislative and regulatory frameworks applicable to your area of responsibility. You will be required to ensure that safe working practices are maintained throughout, and will understand the responsibility you owe to yourself and others in the workplace.

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Performance criteria

You must be able to:

1. work safely at all times, complying with health and safety and other relevant regulations, directives and guidelines
2. plan the introduction of improvements to the quality of engineering products or processes
3. specify clearly the improvements that should be implemented
4. confirm that conditions are suitable to implement the improvements
5. provide clear and accurate instructions to all the relevant people
6. control the use of resources to achieve the most effective results
7. ensure that the improvements are implemented according to plan, recorded and comply with all relevant regulations, directives and guidelines
8. identify and solve any implementation problems that occur
9. assess the impact of the improvements on the quality of engineering products or processes

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Knowledge and understanding

You need to know and understand:

1. the health, safety and environmental requirements applicable to the area in which the quality improvements are to be implemented
2. the importance of wearing protective clothing (PPE) and other appropriate safety equipment during the implementation, and where it may be obtained
3. how to obtain and interpret drawings, charts, specifications, manufacturers' manuals, history/maintenance reports and other documents needed for the implementation of quality improvements
4. the engineering processes and operating procedures in the area associated with the quality issues
5. the types and effects of quality improvement, and their impact
6. the factors that have to be taken into account when selecting the solution to a quality problem
7. the techniques used to obtain information
8. methods and techniques involved in quality improvement implementation
9. methods and techniques involved in evaluating information
10. how to obtain and interpret legislative and regulatory documentation
11. how to obtain and interpret company policy and personnel procedures
12. organisational reporting procedures and documentation, and their application
13. whom to inform of actions taken, and by what means
14. how to retrieve the necessary data from company information systems
15. the types of impact assessment systems/techniques available, and their application
16. the extent of your own responsibility and to whom you should report if you have problems that you cannot resolve

Scope/range related to performance criteria

1. Carry out **all** of the following when implementing the quality improvements:
 1. plan the implementation of quality improvements so as to minimise disruption to normal working
 2. identify and use suitable quality improvement methods, techniques and procedures
 3. control the use of resources for the implementation of the quality improvements
 4. carry out the quality improvements in accordance with the implementation plan
 5. solve any problems that occur during the implementation
 6. assess the impact of the improvements on the quality of products or processes
2. Plan the introduction of quality improvements for **one** of the following:
 1. new product/process
 2. legal/legislative requirement
 3. company standard operating procedures
 4. revisions to existing product/process
 5. international/national standards requirements
3. Specify quality improvements to the product or process, to include **three** of the following:
 1. components
 2. materials
 3. services
 4. equipment
 5. inspection/testing procedures
 6. design
 7. research and development
 8. maintenance/servicing
 9. business systems
 10. safety
 11. environmental impact
 12. supplier
 13. logistics
 14. purchasing
 15. technologies
 16. product or process flow
 17. setting or preparation activities

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18. employee related (such as numbers, training, deployment)
 19. other specific improvement
4. Obtain information to improve quality from **five** of the following:
1. quality assurance department
 2. design department
 3. research department
 4. product specifications
 5. legal/patented information procedures
 6. regulations, guidelines or directives
 7. manufacturer's specifications
 8. international/national standards
 9. benchmarking
 10. technical experts
 11. company documentation and records
 12. direct observation
 13. supplier data and information
 14. customer feedback
 15. other specific source
5. Ensure that the quality improvements conform to **three** of the following:
1. organisational guidelines and procedures
 2. recognised compliance agency/body's standards, directives or codes of practice
 3. equipment manufacturer's operating specification/range
 4. customer standards and requirements
 5. British, European or International standards or directives
 6. health, safety and environmental requirements
6. Monitor the use of **three** of the following resources to ensure effective results:
1. personnel
 2. facilities
 3. equipment
 4. materials
 5. utilities
 6. finance
7. Assess the outcome of the quality improvement implementation, to include **two** of the following:
1. impact of the improvements on the quality of products or processes
 2. cost effectiveness of the process/actions

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3. effect of changes to quality assurance methods or procedures
4. quality of data held on the company information system
5. effectiveness of reporting procedures
6. lessons learned

8. Report and communicate the product/process quality improvements, using:

1. verbal methods

plus **one** from the following:

2. electronic mail
3. computer generated report
4. specific company form
5. other appropriate media

Behaviours

Additional Information

You will be able to apply the appropriate behaviours required in the workplace to meet the job profile and overall company objectives, such as:

- strong work ethic
- positive attitude
- team player
- dependability
- responsibility
- honesty
- integrity
- motivation
- commitment

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Developed by	Enginuity
Version Number	3
Date Approved	30 Mar 2017
Indicative Review Date	31 Mar 2020
Validity	Current
Status	Original
Originating Organisation	Semta
Original URN	SEM4-19
Relevant Occupations	Corporate Managers and Senior Officials, Engineering, Engineering and Manufacturing Technologies, Functional Managers
Suite	Engineering and Manufacture Suite 4
Keywords	Engineering; leading; design; process; maintenance; quality; customer; function; features; objectives; manufacturing; installation; commissioning; testing; carrying out; problems; specifications; quality; research; evaluate; improve; products