

Overview

This standard identifies the competences you need to monitor and evaluate engineering 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 apply appropriate methods and techniques to monitor and evaluate process outputs and the utilisation of resources. During the monitoring process, you will be required to highlight any deviation from agreed specifications, and to recommend appropriate corrective actions.

Your responsibilities will require you to comply with organisational policy and procedures for the monitoring and evaluation of engineering processes, 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 your work, and will enable you to take an informed approach to applying monitoring and evaluation procedures. It will include general and discipline- specific engineering principles and processes. You will understand the monitoring and evaluation processes, and their application, in adequate depth to provide a sound basis for carrying out the activities to the required standard. You will also be able to present the outcomes of your monitoring and evaluation to the relevant people, using appropriate methods.

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.

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 most appropriate way for evaluating the engineering process
3. establish clear and precise criteria for evaluating the engineering process
4. gather data on the engineering process from all valid sources
5. review all relevant information relating to the engineering process
6. monitor and evaluate the engineering process
7. consult with all relevant people during the evaluation
8. assess the potential impact of any changes to be recommended
9. recommend feasible changes or improvements to the engineering process
10. present the results of the evaluation to the appropriate people according to agreed procedures

Knowledge and understanding

You need to know and understand:

1. the specific safety precautions to be taken when monitoring and evaluating engineering processes
2. when to monitor and evaluate engineering processes
3. the quality assurance systems that are being used
4. the methods and tools that are available for monitoring and evaluating engineering process, and the procedures that should be used for evaluation
5. the evaluation criteria that should be used for each type of engineering process within your area of operation
6. the methods that could be used for obtaining information on the engineering processes
7. the relevant sources of information on a particular engineering process
8. how to obtain and interpret information on engineering processes
9. the people that should be involved in the evaluation process
10. the types of recommendation that could emerge from evaluations
11. the type and level of impact that could result from the evaluation outcomes
12. the people requiring information on evaluations, and the procedures for informing them
13. the types of issue that could occur when monitoring and evaluating engineering processes, and how to resolve them
14. the company systems available for recording information
15. why it is important to use the appropriate company information systems
16. how to present information and recommendations
17. the regulations, directives and guidelines relevant to the engineering processes being monitored and evaluated
18. how to obtain and interpret information on the relevant regulations, directives and guidelines
19. 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.

Monitor and evaluate **two** engineering processes for **one** of the following:

- 1.1 manufacturing (such as machining, fabrication, welding, material finishing or manufacture, assembly, joining)
- 1.2 design
- 1.3 research
- 1.4 product or system installation
- 1.5 commissioning
- 1.6 decommissioning or recycling
- 1.7 environmental or sustainability
- 1.8 operational processes (such as movement of materials and logistics)
- 1.9 maintenance practices (such as preventative, corrective, predictive, reactive or prevention)
- 1.10 processing operations
- 1.11 service supplies (such as gas, water, electricity)
- 1.12 engineering support functions (such as procurement, quality assurance, inspection, testing, scheduled safety audits and risk assessments, business improvement)

2.

Establish criteria for monitoring and evaluation of **one** of the following:

- 2.1 equipment capability
- 2.2 equipment performance measurement
- 2.3 the use of computer based records systems for engineering processes

3.

Evaluate the effectiveness of the engineering process, taking into account **six** of the following:

- 3.1 standard operating procedures/work instructions
- 3.2 process/quality control or assurance documentation
- 3.3 organisation documentation used (such as for purchasing, planning scheduling, contracting, sales and marketing)
- 3.4 IT systems
- 3.5 non-conformances/defects
- 3.6 use of equipment
- 3.7 use of materials/resources
- 3.8 staff training and development
- 3.9 supplier data and information
- 3.10 customer data and information
- 3.11 schedules and plans
- 3.12 costs
- 3.13 available technologies
- 3.14 performance/capability

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- 3.15 process outcomes
- 3.16 reliability
- 3.17 maintenance and repair
- 3.18 health and safety
- 3.19 environmental and sustainability factors
- 3.20 recycling
- 3.21 other specific factor

4.

Gather data from **two** of the following sources of information during the evaluation process:

- 4.1 monitoring and audit processes
- 4.2 colleagues
- 4.3 clients
- 4.4 suppliers
- 4.5 general media
- 4.6 specialised media
- 4.7 benchmarking partners

5.

Ensure that the monitoring and evaluation processes comply with **three** of the following:

- 5.1 organisational guidelines and procedures
- 5.2 recognised compliance agency/body's standards, directives or codes of practice
- 5.3 customer standards and requirements
- 5.4 equipment manufacturer's operating specification/range
- 5.5 British, European or International standards or directives
- 5.6 health, safety and environmental requirements

6.

Prepare the results of the evaluation, to include **all** of the following:

- 6.1 an appraisal of the effectiveness of the engineering process
- 6.2 evaluation of the cost effectiveness of the engineering process
- 6.3 an appraisal of the compliance of the engineering process with defined criteria
- 6.4 a recommendation of feasible changes or improvements to the engineering process
- 6.5 a proposed method for monitoring the impact of the improvements to the engineering process
- 6.6 an appraisal of the effectiveness of evaluation process

7.

Report and communicate results of the monitoring and evaluation, using:

- 7.1 verbal methods

plus **one** from the following:

- 2. electronic mail

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3. computer-based presentation
4. computer generated report
5. specific company document
6. 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

Monitor and evaluate engineering processes

Developed by Enginuity

Version Number 3

Date Approved 30 Mar 2017

Indicative Review Date 31 Mar 2020

Validity Current

Status Original

Originating Organisation Sema

Original URN SEMEM4-15

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; monitor; evaluate; processes
