SEMETS347

Producing technical information for engineering activities

Overview

This standard identifies the competences you need to produce technical information for engineering activities, in accordance with approved procedures. You will be required to produce the technical information for engineering activities such as machining, assembly, fabrication, materials processing and finishing, maintenance, installation and commissioning, material movement/storage, handling and lifting, and other operational or business activities. You will need to produce the technical information in the correct form for the specific engineering activities to take place, and to pass them on to the appropriate people, within agreed timescales. You must also ensure that the activities within your control, and the technical information provided, conform to organisational and legal requirements.

Your responsibilities will require you to comply with organisational policy and procedures for producing the technical information, and to report any problems that you cannot personally resolve, or that are outside your permitted authority, to the relevant people. You will be expected to work with a minimum of supervision, taking personal responsibility for your own actions and for the quality and accuracy of the work that you carry out.

Your underpinning knowledge will provide a good understanding of your work, and will provide an informed approach to gathering appropriate information, determining the technical information required, and presenting the required information in the relevant formats. You will understand your organisation's methods of operation, in sufficient detail to enable you to make informed decisions.

You will be aware of any health, safety and environmental requirements applicable to your area of responsibility. You will be required to demonstrate safe working practices 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 legislation and other relevant regulations, directives and guidelines
2. produce technical information that contains all the relevant and necessary data for the engineering activity to be carried out
3. present the technical information in the appropriate formats
4. make sure that codes and other references used in the technical information follows agreed conventions
5. present technical information to the appropriate people within agreed timescales
6. record the technical information and store them securely in accordance with organisational requirements
7. undertake changes to the technical information within agreed control procedures

Knowledge and understanding

You need to know and understand:

1. how to access information on health and safety regulations and guidelines relating to the technical information being produced
2. the implications of not taking account of legislation, regulations, standards and guidelines when specifying the technical information
3. how to obtain information on the engineering requirements, and the type of information that is available (such as customer requirements and instructions, quality control requirements and the product specification)
4. how to extract information from drawings, documents and related specifications (to include symbols and conventions to appropriate BS or ISO standards and, where appropriate regulations), in relation to the work being undertaken
5. the materials, formats, codes and conventions that are used in presenting the technical information
6. the types of data that should be included in the technical information you are producing
7. the factors to be considered when determining the technical information, especially those covering working conditions and safety
8. the process used for the development of the technical information (to include both master documents and working instructions, along with their purpose, content and status)
9. how to prepare the technical information (to include the structure, style, clarity and compliance with relevant standards)
10. the process used in your organisation to validate the technical information produced
11. the control procedure for ensuring that the technical information is maintained up to date
12. the procedures for changing technical information, and why control procedures are used
13. the importance of maintaining records; what needs to be recorded and where records are kept
14. how to access and use the appropriate information and documentation systems
15. the different ways of presenting information to different people
16. the importance of customer care and satisfaction
17. the importance of providing the right information at the right time

18. problems that can occur with specifying technical information for engineering requirements, and how they can be minimised
19. the extent of your own responsibility, and to whom you should report if you have any problems that you cannot resolve
20. the sources of technical expertise if you have problems you cannot resolve
21. the organisational procedures for providing information to different people

Scope/range

1. Carry out all of the following when determining and producing the technical information:
    1.1 use the correct issue of company information
    1.2 check that all essential information and data needed to identify the technical requirements is available
    1.3 ensure that health and safety regulations and safe working practices are considered
    1.4 ensure that the influence of working conditions on technical performance is recognised and included in the technical information
    1.5 present the technical information in the appropriate formats
    1.6 resolve any problems as they occur, within your level of responsibility
2. Produce technical information for one of the following engineering activities:
    2.1 drawing/design activities (such as mechanical, electrical/electronic, motor vehicle, aerospace, marine)
    2.2 manufacturing activities (such as machining, detail fitting, fabrication of components, pressing, implant, photolithography)
    2.3 material processing activities (such as heat treatment, casting, injection moulding, purification)
    2.4 composite manufacture (such as wet lay-up, pre-preg laminating, resin infusion, blow moulding)
    2.5 finishing activities (such as stripping finishes, painting, plating, anodising, veneering, lacquering, etching, deposition, polishing)
    2.6 assembly activities (such as mechanical, structural, fluid power, electrical/electronic, woodworking)
    2.7 installation activities (such as mechanical, electrical/electronic, avionic, structural, environmental equipment)
    2.8 plant and equipment (such as site preparation, plant layout, equipment changeover, equipment replacement)
    2.9 equipment capability studies/performance measurement
    2.10 movement/storage of materials, components or finished goods
    2.11 business improvement activities
    2.12 engineering safety audits or risk assessments
    2.13 quality control/quality assurance
    2.14 modification and repair activities
    2.15 commissioning/decommissioning
    2.16 maintenance activities
    2.17 research and development
    2.18 testing and trialling
    2.19 engineering support services
    2.20 new product or component introduction (NPI) to the business operation
    2.21 launch of an engineered product to the market
    2.22 logistic operations
3. Include five of the following in the technical information:
    3.1 equipment operating detail (function)

3.2 specific or specialist equipment required
3.3 equipment performance parameters
3.4 materials required/used
3.5 physical characteristics (such as dimensions, weight)
3.6 timing/delivery details
3.7 environmental considerations/operating conditions
3.8 cost/budget estimation/details
3.9 manufacturing methods
3.10 aesthetics/finish details
3.11 manufacturing detail
3.12 quality requirements/control
3.13 processing requirements
3.14 monitoring/servicing frequency
3.15 work instructions or procedures
3.16 training required
3.17 number/volume required
3.18 customer interface requirements
3.19 resource requirements
3.20 safety requirements
3.21 equipment/component interfacing

4. Take account of applicable standards and conventions when producing the technical information, to include five of the following:

4.1 terminology
4.2 referencing and indexing
4.3 nomenclature
4.4 geometric tolerancing
4.5 colour codes
4.6 document format and layout
4.7 symbols and abbreviations
4.8 safe working practice and procedures
4.9 organisation instructions
4.10 variations in regional/global product specification and compliance (such as: language, units of measure and currency)

5. Carry out both of the following on completion of the gathering of the technical information:

5.1 validation and evaluation of the systems and procedures used to gather and produce the technical information
5.2 recommendations for improvements or changes to the information gathering systems and procedures used

6. Ensure that the technical information complies with three of the following:

6.1 organisational guidelines and codes of practice
6.2 customer standards and requirements
6.3 relevant standards or directives
6.4 recognised compliance agency/body's standards
6.5 health, safety and environmental requirements

7. Present the technical information to the appropriate people using the following:

7.1 specific organsiation documentation

Plus one more method from the following:

2. a verbal report
3. electronic mail
4. computer based presentation
5. computer generated report
6. other appropriate media

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