

Leading mechanical manufacturing or inspection activities

Overview

This standard identifies the competences you need to lead a mechanical manufacturing or inspection team, including agreeing and monitoring departmental budgets, developing and updating production/inspection schedules and plans in accordance with approved procedures and policies, to ensure that the products manufactured/inspected are fit for purpose and meet the required quality specification on time and to budget. You will also be required to ensure that the team have the appropriate skills knowledge and understanding required to produce/inspect the products required in the manufacturing area you have responsibility for.

You will also be required to identify and implement a systematic approach to improving the manufacturing/inspection activities undertaken.

Your responsibilities will require you to comply with organisational policy and procedures for the mechanical manufacturing/inspection activities undertaken, and to report any problems with the activities that you cannot personally resolve or that are outside your permitted authority, to the relevant people. You must ensure that all necessary data, documentation is completed accurately and legibly and stored in the correct location and format. You will be expected to work with minimal supervision, taking personal responsibility for your own actions, and for the quality and accuracy of the work carried out by the mechanical manufacturing/inspection team.

Your underpinning knowledge will provide an in depth understanding of your work, and will provide an informed approach to applying a range of leadership methods and techniques to ensure that the products manufactured/inspected are fit for purpose and meet the quality specification on time and to budget. You will know about the tools and equipment and consumables required in an adequate depth to provide a sound basis for leading the mechanical manufacturing/inspection activities. In addition, you will have sufficient knowledge on how to develop the manufacturing/inspection team and how to identify and implement a systematic approach to improving the manufacturing/inspection activities undertaken.

You will understand the safety precautions required when carrying out the mechanical manufacturing/inspection activities. You will also understand your responsibilities for safety and the importance of taking the necessary safeguards to protect 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. develop, gain agreement and review manufacturing/inspection departmental budgets
3. produce, agree and update departmental production/inspection schedules and plans
4. ensure that schedules and plans are capable of meeting all relevant outputs required
5. lead mechanical manufacturing/inspection activities within the department
6. complete and save relevant production/inspection data and documentation accurately
7. identify and lead on making improvements to processes and procedures
8. ensure manufacturing/inspection activities are carried out correctly in line with agreed company processes and procedures
9. create and update visual management documentation and systems to support the activities of the department
10. report and evaluate the impact of improvement activities
11. produce and maintain departmental competency skills matrix of team members

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Knowledge and understanding

You need to know and understand:

1. the health and safety requirements of the area in which the mechanical manufacturing/inspection activity is to take place, and the responsibility these requirements place on you
2. the information systems that are in use within your organisation, and how to record data to the system
3. how to obtain and interpret legislative and regulatory documentation
4. how to obtain and interpret company policies and procedures
5. how to prioritise your own and your team's workload to ensure that targets are met
6. the process to be followed to develop and gain agreement on departmental budgets
7. the importance of regularly monitoring departmental budgets and the implications for the business if this is not carried out
8. how to communicate effectively, listen, question, support and coach others to work towards the departmental targets
9. the importance of ensuring that teams have the required skills, knowledge and understanding in order to manufacture or inspect the products/components to the required standards
10. how to access training and development programmes once a training need has been identified
11. the specific health and safety precautions to be applied during the manufacturing/inspection process and their effects on others
12. how to complete and review risk assessments
13. hazards associated with carrying out activities in the department (such as handling oils, greases, stored pressure/force, misuse of tools, using damaged or badly maintained tools and equipment, not following laid-down procedures) and how to minimise these and reduce any risks
14. the importance of ensuring employees wear protective clothing and other appropriate safety equipment (PPE) during the manufacturing/inspection process
15. the importance of having access to up to date data and information such as drawings, specifications, manufacturers' manuals and other documents needed in the manufacturing/inspection process
16. how to interpret drawings, charts, specifications, information, data, reports, manuals and other documents needed to understand the requirements of the manufacturing/inspection activity
17. how interpret changes to the requirements for the manufacturing/inspection activities
18. who to contact for clarification of the manufacturing/inspection requirements
19. who should be involved in authorising any changes required to manufacturing/inspection activities
20. the operating principles and processes of the

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- manufacturing/inspection equipment used in your area of responsibility
21. the manufacturing/inspection methods that could be used for different types of processes or activity
 22. the different types of equipment, and how they should be used for various manufacturing/inspection methods
 23. how to determine the resources that are required for the manufacturing activities
 24. the methods used to calculate how long it should take to complete specific work outputs
 25. the procedure for purchasing/obtaining materials and other consumables necessary for the manufacturing/inspection activities
 26. the company policy on repair/replacement of equipment required to manufacture/inspect products efficiently and effectively
 27. the importance of keeping up to date with new technologies, manufacturing/inspection processes and systems
 28. the common problems associated with the manufacturing/inspection activity
 29. the quality criteria that must be used for the different products or process
 30. the quality assurance and control methods that are used in the department
 31. the personnel involved to ensure that the quality of product outcomes are fit for purpose and their responsibilities to ensure this is achieved
 32. the tools and equipment used to ensure the products meet the customers quality requirements
 33. the process and procedures to be followed when defective products are identified both during production/on completion of the manufacturing/inspection process
 34. the organisational procedure(s) to be adopted for the safe disposal of all types of waste materials
 35. how to conduct a systematic plan, do, check, act (PDCA) approach to problem-solving and business improvement
 36. how to use "root cause" problem solving analysis using the 5 whys/how technique
 37. how to evaluate improvement ideas in order to select those that are to be pursued
 38. how improvements to the process are achieved by engaging the knowledge and experience of the people working on the process
 39. how to create, review and modify Standard Operating Procedures (SOP's) and correlate work activities into them
 40. the techniques required to communicate information using visual control systems (such as, card systems, colour coding, floor footprints, graphs and charts, team boards, tool/equipment shadow boards)
 41. the extent of your own authority and to whom you should report if you have a problem that you cannot resolve

Scope/range related to performance criteria

1. Lead the mechanical manufacturing/inspection team by carrying out **all** the following:
 1. obtain accurate details of the products to be manufactured/inspected
 2. review and interpret the product specification and documentation to assess their characteristics and requirements
 3. clarify any aspects of the product specification or timescales that are unclear
 4. communicate the manufacturing/inspection activities to be undertaken with the team
 5. involve the team in planning how the manufacturing/inspection activities will be achieved
 6. provide clear and accurate instructions to all the relevant people
 7. secure, monitor and control the use of resources to achieve the most effective results
 8. confirm and communicate any changes to the product specification and/or timescales required by the customer
 9. allocate specific jobs/tasks to each team member
 10. motivate the team to present their own ideas on improvements that could be made to the manufacturing process and procedures
 11. encourage the team and/or individuals to take the lead where appropriate
 12. deal efficiently and effectively with problems affecting production/inspection output
 13. produce and agree contingency plans when required
2. Lead mechanical manufacturing/inspection activities for **one** of the following processes:
 1. machining
 2. assembly
 3. welding
 4. fabrication
 5. toolmaking
 6. product overhaul, test and repair
 7. metal production
 8. composite manufacture
 9. woodworking, pattern or modelmaking
 10. materials processing and finishing
 11. inspection or testing of products/components

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12. other product/component manufacturing/processing operations
 3. Obtain operational information from **three** of the following:
 1. design office
 2. industrial engineering
 3. quality engineering
 4. process engineering
 5. production engineering
 6. company information systems
 7. customer
 8. sales department
 9. component/product manufacturers
 10. material/component supplier
 11. other specific source
 4. Create and maintain management data and information to include the following:
 1. production/inspection plans/delivery schedulesplus supporting documentation associated with **three** of the following
 2. quality records/defects
 3. problem history/resolution
 4. resources/materials requisitions
 5. budgets
 6. equipment performance
 7. equipment maintenance
 8. equipment downtime/failure
 9. equipment utilisation
 10. health and safety
 11. staff development and training
 12. department procedures/work instructions
 13. tests and trials
 14. regulatory compliance
 5. Identify and implement improvements in the manufacturing/inspection department to achieve **four** of the following:
 1. reduced production costs
 2. reduced lead times
 3. improved quality
 4. improved equipment/tooling efficiency
 5. improved staff utilisation
 6. improved working practices
 7. improved equipment downtime
 8. improved equipment utilisation

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9. improved use of production/inspection technologies
 10. improved use of information technology
 11. improved health and safety
 12. improved visual management systems/documentation
 13. improved resource planning
 14. improved staff development and training
 15. reduction in waste
 16. reduction in energy usage
 17. improved environmental impact
 18. improved customer service
 19. other specific improvement
6. Ensure manufactured products complies with **three** of the following:
1. organisational guidelines and procedures
 2. equipment manufacturer's operating specification/range
 3. British, European or International standards or directives
 4. recognised compliance agency/body standards or directives
 5. health, safety and environmental requirements
 6. customer standards and requirements
7. Complete the relevant documentation to include **one** from the following:
1. job cards
 2. company-specific production recording system

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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