

SEMBIT3-04 - SQA Unit Code F9HJ 04

Applying continuous improvement techniques (Kaizen)



Overview

This unit covers the competences required for applying continuous improvement techniques (Kaizen) to your work activities. It involves planning the Kaizen process for the agreed work area/activity, to include plan, do, check, act, and to establish quantifiable objectives and targets for the improvement activity. The activities undertaken will include the identification of all forms of waste, and problems or conditions within the work area or activity where improvements can be made. You will need to focus on co-ordinating and carrying out improvement activities which would give business benefits such as reduced product cost, increased capacity and/or flexibility, improved safety, improved regulatory compliance, improved quality, improved customer service, improvements to working practices and procedures, reduction in lead time and reduction/elimination of waste.

You will also be required to produce changes to standard operating procedures (SOPs), which could include cleaning of equipment, maintenance of equipment, health and safety practices and procedures, process procedures, manufacturing operations and quality improvements.

Your responsibilities will require you to comply with organisational policy and procedures for the activities undertaken, and to report any problems that you cannot solve, or that are outside your responsibility, to the relevant authority. You will be expected to take full responsibility for your own actions within the activity, and for the quality and accuracy of the work that you carry out.

Your underpinning knowledge will provide a good understanding of the Kaizen activity and the area in which you are working, and will provide an informed approach to the techniques and procedures used. You will need to understand the Kaizen principles and their application, in adequate depth to provide a sound basis for carrying out the activities to the required criteria.

Applying safe working practices will be a key issue throughout.

Performance criteria

- You must be able to:*
- P1 work safely at all times, complying with health and safety and other relevant regulations and guidelines
 - P2 plan the Kaizen process to the agreed work area/activity to include plan, do, check, act
 - P3 establish objectives and targets for the Kaizen activity
 - P4 carry out the Kaizen activity within the chosen work area/activity
 - P5 identify and confirm waste, problems or conditions within the work area or activity and what improvements can be made
 - P6 co-ordinate and carry out a structured waste elimination activity, based on the identified wastes, problems or conditions
 - P7 produce changes to standard operating procedures (SOPs), or other approved documentation that will sustain the improvements resulting from the Kaizen activity
 - P8 determine and calculate measures of performance for quality, cost and delivery
 - P9 calculate and visually represent the optimum resources required for a process based on customer demand
 - P10 provide comparisons of the agreed work area/activity before and after the kaizen activity to confirm improvements using key performance indicators

Knowledge and understanding

You need to know and understand:

- K1 the health and safety requirements of the area in which you are carrying out the Kaizen activity
- K2 how a work area/activity is selected for the Kaizen activity
- K3 the principles for the deployment of Kaizen (such as where a culture focuses on sustained continuous improvement, aiming at eliminating waste in all systems and processes in the organisation and supply chain)
- K4 the eight wastes (over-production, inventory, transport, over-processing, waiting time, operator motion, bad quality, failure to exploit human potential) and how to eliminate them
- K5 problem solving and root cause analysis
- K6 the importance of understanding the process/activity under review, and how this will affect the quality of the problem solving
- K7 the application of the Deming cycle (plan, do, check, act)
- K8 how to carry out a Kaizen activity and establish measurable improvements
- K9 how to distinguish facts from opinions in order to identify improvement actions
- K10 how improvements to the process are achieved by engaging the knowledge and experience of the people involved in the process
- K11 how to encourage people to identify potential improvements
- K12 how to evaluate improvement ideas in order to select those that are to be pursued
- K13 how to set quantifiable targets and objectives
- K14 how to produce/propose the creation of or changes to standard operating procedures (SOPs) or other approved documentation
- K15 the techniques used to visually communicate the work of the Kaizen activity to participants and others
- K16 the application of the business' key measures of competitiveness (such as the former DTI's seven measures: delivered right first time, delivery schedule achievement, people productivity, stock turns, overall equipment effectiveness, value added per person, floor space utilisation)
- K17 how the cycle time of a process can be defined.
- K18 how to calculate the required production rate for a process by using a calculation (such as Takt Time)
- K19 how to calculate the optimal resources (such as people, equipment, facilities and materials) required for a process based on customer demand
- K20 the techniques used to distribute work content to balance cycle times to the rate of customer demand, and how to visually represent it (e.g. line balance and process displays)
- K21 the extent of your own authority, and to whom you should report to in the event of problems that you cannot resolve

Additional Information

Scope/range related to performance criteria

You must be able to:

1. identify and confirm improvements within the working area/activity which cover **three** of the
 - 1.1 reduction in cost
 - 1.2 improved health, safety and/or working environment
 - 1.3 improved quality
 - 1.4 improved regulatory compliance
 - 1.5 improvements to working practices
 - 1.6 reduction in lead time
 - 1.7 reduction in waste and/or energy usage
 - 1.8 improved customer service
 - 1.9 improved resource utilisation
2. identify and apply improvements, which cover **three** of the following:
 - 2.1 cleaning of equipment or work area
 - 2.2 maintenance of equipment
 - 2.3 health and safety
 - 2.4 process procedures
 - 2.5 manufacturing operations or work area operations
 - 2.6 quality system
 - 2.7 regulatory compliance systems
3. determine and calculate **one** of the following quality measures:
 - 3.1 not right first time (as a percentage or as parts per million (PPM))
 - 3.2 company-specific quality measure
4. determine and calculate **one** of the following measures:
 - 4.1 delivery schedule achievement
 - 4.2 company-specific delivery or service measure
5. determine and calculate **one** of the following cost measures:
 - 5.1 parts per operator hour (PPOH)
 - 5.2 production volume
 - 5.3 value added per person (VAPP)
 - 5.4 overall equipment effectiveness (OEE)
 - 5.5 stock turns
 - 5.6 floor space utilization (FSU)
 - 5.7 cost breakdown (such as labour, material, energy and overhead)
 - 5.8 company-specific cost measure
6. record and show business improvements, using **one** of the following key performance indicators:
 - 6.1 not right first time (as a percentage or as parts per million (PPM))
 - 6.2 company-specific quality measure
 - 6.3 delivery schedule achievement
 - 6.4 company-specific delivery measure
 - 6.5 parts per operator hour (PPOH)
 - 6.6 production volume
 - 6.7 value added per person (VAPP)
 - 6.8 overall equipment effectiveness (OEE)

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- 6.9 stock turns
- 6.10 floor space utilization (FSU)
- 6.11 cost breakdown (such as labour, material, energy and overhead)
- 6.12 company-specific cost measure

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Developed by	SEMTA
Version number	1
Date approved	December 2008
Indicative review date	December 2013
Validity	Current
Status	Original
Originating organisation	SEMTA
Original URN	04
Relevant occupations	Business, Administration and Law; Associate Professionals and Technical Occupations; Business management; Business and Finance Associate Professionals
Suite	Business Improvement Techniques Suite 3 2008
Key words	Engineering, business, improvement, techniques, continuous improvement, kaizen, benchmarking, objectives, targets, operating procedures