

SEMBIT2-15 - SQA Unit Code F9JG 04

Contributing to the application of basic statistical analysis



Overview

This unit covers the competences required for contributing to basic statistical analysis by consulting with the appropriate people and gathering the relevant data for statistical analysis on a Six Sigma project. You will need to contribute to using the data gathered to produce descriptive statistics, which cover mean, median, mode, standard deviation, range and variance for the selected representative sample. You will be expected to contribute to recording the statistics gathered, using a variety of techniques that could include bar charts, histograms, Pareto diagrams, stem and leaf diagrams, box plots and time series charts. You will also be required to contribute to producing an action plan as a result of the statistical and graphical analysis undertaken.

Your responsibilities will require you to comply with organisational policy and procedures for the activities undertaken, and to report any problems with the activities that you cannot solve, or that are outside your responsibility, to the relevant authority. You will need to ensure that all the necessary documentation and/or visual representations are completed accurately and legibly. You will be expected to take responsibility for your own actions within the activity, and for the quality and accuracy of the work that you produce.

Your underpinning knowledge will provide a good understanding of basic statistical analysis, and will provide an informed approach to the techniques and procedures used. You will need to understand the principles and application of basic statistics, 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.

Specific Unit Requirements

The word 'contribute' is used throughout this unit. This means that, although the outcomes of this unit may be carried out and achieved as part of a team, in order to prove consistent competent performance you must be able to demonstrate:

1. specific, quantifiable and auditable personal contributions in the achievement of this unit
2. competence in all the areas required by the standard
3. your ability to combine the performance statements specified when contributing to the application of the principles and processes of this unit.

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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 consult with appropriate people and contribute to gathering the relevant data for statistical analysis
- P3 contribute to the production of data gathering forms or charts to gather information, to enable statistical and graphical analysis to take place
- P4 contribute to statistical and graphical analysis on a Six Sigma project
- P5 contribute to the production of a normal distribution, to assess a population from the representative sample
- P6 contribute to the interpretation of the statistical data collected, in order to validate the pre-determined courses of action
- P7 contribute to the production of an action plan, as a result of the statistical and graphical analysis undertaken

Knowledge and understanding

You need to know and understand:

- K1 the health and safety requirements of the area in which you are collecting data
- K2 the meaning of the term `variation'
- K3 why a number of data points are needed to draw a statistically valid conclusion
- K4 why we need to use basic statistics
- K5 what is meant by the terms `population' and `sample' when applied to basic statistics
- K6 distribution curves and the properties of a normal curve
- K7 how to use charts and diagrams (such as bar charts, histograms, box plots, time series charts, Pareto diagrams, stem and leaf diagrams)
- K8 how to calculate mean, median, mode, standard deviation, range and variance
- K9 the difference between descriptive and inferential statistics
- K10 the extent of your own authority within the project, and to whom you should report in the event of problems that you cannot resolve

Additional Information

**Scope/range
related to
performance
criteria**

You must be able to:

1. contribute to the production of descriptive statistics of data, to include:
 - 1.1. mean
 - 1.2. median
 - 1.3. mode
 - 1.4. standard deviation
 - 1.5. range and variance
2. contribute to the recording of collected data, utilising **two** of the following methods:
 - 2.1. bar charts
 - 2.2. histograms
 - 2.3. Pareto diagrams
 - 2.4. stem and leaf diagrams
 - 2.5. box plots
 - 2.6. time series charts

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