

Statistical Methods Useful in Quality Control

Statistical methods play a vital role in quality control and improvement. Statistical techniques provide the means by which a product is sampled, tested, evaluated, and the data- derived information is used to control and improve the process and product quality. Using statistics and statistical techniques quality engineers, manufacturing engineers, management, and others in business and industry communicate about quality. This course is designed to provide you with a basic understanding of statistics and statistical methods and their use in statistical quality control. Many of the techniques developed in statistics for the analysis of data may be used in the control of product quality. Upon completion of this course, one should be able to:

- understand the meaning of quality improvement and the role of statistics in this context
- understand descriptive and inferential statistics and the importance of variability in statistical quality control
- use terminology associated with statistics and understand the importance and methodology of data collection, presentation and analysis
- recognize the methods by which a product is sampled, tested, and evaluated, and how the information derived from the data is used to control and improve the process
- use simple graphical and numerical techniques to summarize the information derived from the sample data
- recognize the role of probability and probability distributions to model the behavior of product and process parameters
- understand the sampling distribution and use of the central limit theorem in analyzing quality related data
- use sample and sampling techniques for estimating population parameters based on sample data, and
- understand the role and use of computers in quality improvement.