



Objectives Sheet

CMQ 232 - Creation and Evaluation of Quality Control Graphs

Course Learning/Performance Objectives followed by enabling learning objectives

CMQ 232.U01.01	Given scenarios with supporting quality control data, identify examples of concepts related to quality-control graphics.
CMQ 232.U01.01.01	Identify the difference between attribute and variable data.
CMQ 232.U01.01.02	Identify the difference between statistical and non-statistical sampling.
CMQ 232.U01.01.03	Identify the purpose of each quality control graphic type.
CMQ 232.U01.02	Given scenarios with supporting quality control data, identify examples of concepts related to SPC.
CMQ 232.U01.02.01	Recognize the role of control limits and specification limits.
CMQ 232.U01.02.02	Recognize the construction control limits for attribute charts and variable charts.
CMQ 232.U01.02.03	Recognize the concepts of process capability (Cp) and process capability index (Cpk).
CMQ 232.U02.01	Given a scatter diagram and the supporting quality control data for the variables in question, identify the relationships between the variables.
CMQ 232.U02.01.01	Define correlation analysis.
CMQ 232.U02.01.02	Identify the purpose of correlation analysis.
CMQ 232.U02.01.03	Identify correlation analysis techniques.
CMQ 232.U02.01.04	Given scenario data and an accompanying scatter diagram, identify the features and relationships depicted in the correlation (scatter) diagram.
CMQ 232.U02.02	Given correlation analysis results and an accompanying scatter diagram, identify relationships between variables.
CMQ 232.U02.02.01	Given a scenario with supporting quality control data, construct associated attribute-control charts.
CMQ 232.U02.02.02	Identify the steps to create p, np, c and u attribute-control charts.
CMQ 232.U02.02.03	Given a scenario with supporting data, construct p, np, c and u attribute-control charts from given data.
CMQ 232.U02.02.04	Given a scenario with supporting data, calculate control limits for p, np, c, and u attribute-control charts.
CMQ 232.U02.02.05	Given a scenario with supporting data and associated control charts, recognize potential indicators of special causes in p, np, c, and u attribute-control charts.
CMQ 232.U02.03	Given a scenario with supporting quality control data, construct associated variable-control charts.
CMQ 232.U02.03.01	Identify the steps to create Xbar & R, Xbar & S, and Xbar & MR variable-control charts.
CMQ 232.U02.03.02	Given a scenario with supporting data, Xbar & R, Xbar & S, and Xbar & MR variable-control charts.
CMQ 232.U02.03.03	Given a scenario with supporting data, calculate the standard deviation, range, and control limits for Xbar & R, Xbar & S, and Xbar & MR variable-control charts.
CMQ 232.U02.03.04	Given a scenario with supporting data and associated control charts, recognize potential indicators of special causes in Xbar & R, Xbar & S, and Xbar & MR variable-control charts.
CMQ 232.U02.04	Given source data and corresponding quality control charts, identify process triggers as part of the SPC troubleshooting process.
CMQ 232.U02.04.01	Given source data and corresponding control charts, identify variation signals on quality control graphics to identify out-of-control occurrences, including runs, hugging, and trends.
CMQ 232.U02.04.02	Given source data and corresponding control charts, identify the differences between control chart patterns to distinguish between common cause and special cause variation.
CMQ 232.U02.04.03	Given source data and corresponding control charts, recognize process triggers (chart detection rules) for use as part of the SPC troubleshooting process.
CMQ 232.U03.01	Given scenario with supporting quality control data, interpret the calculated DPMO value.
CMQ 232.U03.01.01	Recognize how Defects Per Million Opportunities (DPMO) relates to measurement of process performance.
CMQ 232.U03.01.02	Recognize how DPMO relates to 3 Sigma and 6 Sigma.
CMQ 232.U03.01.03	Given scenario with supporting data, calculate DPMO.
CMQ 232.U03.01.04	Given scenario with supporting data, interpret the calculated DPMO value.
CMQ 232.U03.02	Given a scenario with supporting quality control data, interpret the calculated values of Cp, Cpk, and CR.
CMQ 232.U03.02.01	Recognize the difference between the components of Cp, Cpk, and Capability Ratio (CR).
CMQ 232.U03.02.02	Recognize when to use Cp, Cpk, and CR in various quality control situations.
CMQ 232.U03.02.03	Given a scenario with supporting data, calculate Cp.
CMQ 232.U03.02.04	Given a scenario with supporting data, calculate Cpk.
CMQ 232.U03.02.05	Given a scenario with supporting data, calculate CR.
CMQ 232.U03.02.06	Given a scenario with supporting data, interpret the calculated Cp, Cpk, and CR values.