

## IMPROVEMENT OF PROCESS QUALITY

UNIT CODE: MATH/CU/AS/CR/06/6/A

### Relationship to Occupational Standards

This unit addresses the unit of competency: Improve Process Quality

**Duration of Unit:** 200 hours

### Unit Description

This unit specifies the competencies required to improve industrial process quality. It involves determining process quality characteristics (attributes and/or variables), developing sampling plans, collecting quality-control data, performing Statistical Process Control (SPC), Preparing and interpreting control charts.

### Summary of Learning Outcomes

1. Determine process quality characteristics (attributes and/or variables)
2. Develop sampling plans
3. Collect quality-control data
4. Perform Statistical Process Control (SPC)
5. Prepare and interpret control charts

### Learning Outcomes, Content and Suggested Assessment Methods

Learning Outcome	Content	Suggested Methods	Assessment
1. Determine process quality characteristics (attributes and/or variables)	<ul style="list-style-type: none"><li>• Process Capability<ul style="list-style-type: none"><li>• Normality</li><li>• Stability</li><li>• Performance</li><li>• Centrality</li><li>• Capability</li></ul></li></ul>	<ul style="list-style-type: none"><li>• Written test</li><li>• Observation</li><li>• Third party report</li><li>• Oral questioning</li><li>• Interviews</li></ul>	
2. Develop sampling plans	<ul style="list-style-type: none"><li>• Acceptance Sampling<ul style="list-style-type: none"><li>• Sampling plans</li><li>• Sampling plan calculations</li><li>• Outgoing quality</li><li>• Double sampling plans</li></ul></li></ul>	<ul style="list-style-type: none"><li>• Written test</li><li>• Observation</li><li>• Third party report</li><li>• Oral questioning</li><li>• Interviews</li></ul>	
3. Collect quality-control data	<ul style="list-style-type: none"><li>• Measurements quality validation</li></ul>	<ul style="list-style-type: none"><li>• Written test</li><li>• Observation</li></ul>	

Learning Outcome	Content	Suggested Methods	Assessment
	<ul style="list-style-type: none"> <li>Data collection methods</li> </ul>	<ul style="list-style-type: none"> <li>Third party report</li> <li>Oral questioning</li> <li>Interviews</li> </ul>	
4. Perform Statistical Process Control (SPC)	<ul style="list-style-type: none"> <li>Statistical Process Control <ul style="list-style-type: none"> <li>Control limits</li> <li>Individual charts <ul style="list-style-type: none"> <li>Xbar charts</li> <li>Np charts</li> <li>C-charts</li> <li>R-charts</li> </ul> </li> </ul> </li> <li>setting up an SPC system</li> </ul>	<ul style="list-style-type: none"> <li>Written test</li> <li>Observation</li> <li>Third party report</li> <li>Oral questioning</li> <li>Interviews</li> </ul>	
5. Prepare and interpret quality tools and decision making	<ul style="list-style-type: none"> <li>Basic quality tools <ul style="list-style-type: none"> <li>Control charts</li> <li>Fishbone diagram</li> <li>Check sheets</li> <li>Histogram</li> <li>Pareto chart</li> <li>Scatter plot</li> <li>Run chart</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>Written test</li> <li>Observation</li> <li>Third party report</li> <li>Oral questioning</li> <li>Interviews</li> </ul>	

### Suggested Methods of Instructions

- Projects
- Demonstration by trainer
- Practice by the trainee
- Discussions
- Direct instruction

### Recommended Resources

- Computer
- Software
- Stationary
- Printer
- Measurement tools
- Datasets