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Total Quality Management

Sub Code- MBEIV - 13

Unit – III

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Program Objectives

- PO1:** Apply knowledge of management theories and practices to solve business problems.
- PO2:** Foster Analytical and critical thinking abilities for data-based decision making.
- PO3:** Ability to develop value based leadership ability.
- PO4:** Ability to understand, analyze and communicate global, economic, legal, and ethical aspects of business.
- PO5:** Ability to lead themselves and others in the achievement of organizational goals, contributing effectively to team environment.

Program Objectives

- PO6:** Ability to evaluate a business idea and formulate a feasible business plan.
- PO7:** Recognize the need for and have the orientation and ability to engage in an independent & lifelong learning in a dynamic business environment.
- PO8:** Ability to appraise and explain societal and environmental aspects of business.

Course Objectives- TQM

- CO1: Utilize/ design** the basic tools of quality for quality related issues in the organization/ workplace.
- CO2: Select** appropriate TQM tool for troubleshooting issues related to quality in organization.
- CO3: Implement** Six Sigma for process improvement at workplace.
- CO4: Identify** the causes of variation in a manufacturing set up and implement Statistical Process Control to support data based problem solving.
- CO5: Identify** benchmark for himself/ herself and/ or organization
- CO6: Implement** KAIZEN at workplace for identifying areas for improvement.

For Academic Purpose Only

Unit III:

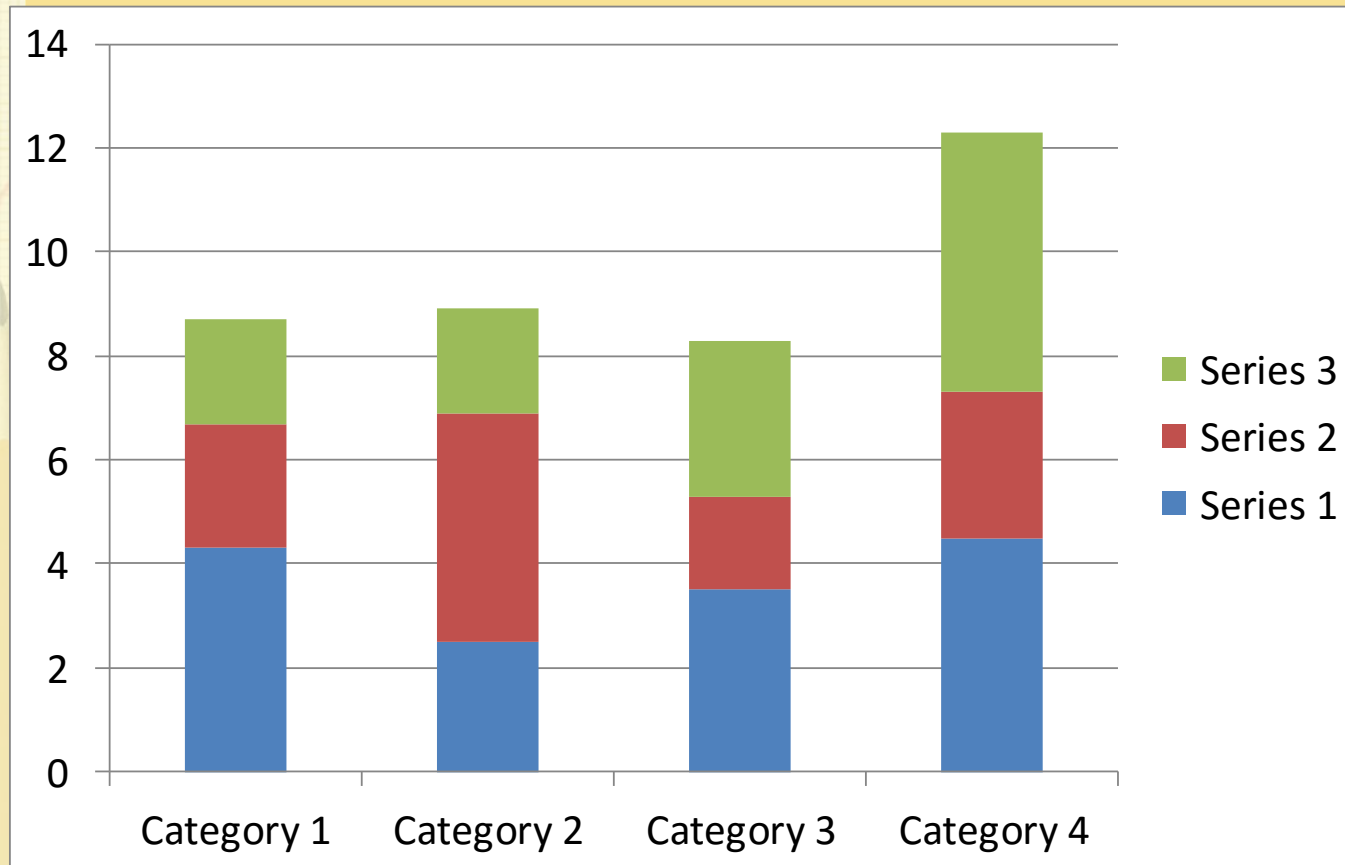
Quality Improvement Techniques

- Pareto Diagrams
- Cause-Effect Diagrams
- Scatter Diagrams
- Run Charts
- Cause and Effect Diagrams
- Control Charts for Variables – Definitions
- Common vs. Special Causes

Unit Objectives

- To be able to construct the basic tools of quality for the given statistical data.
 - Pareto Chart
 - Ishikawa Diagram
 - Control Chart

1. Histogram

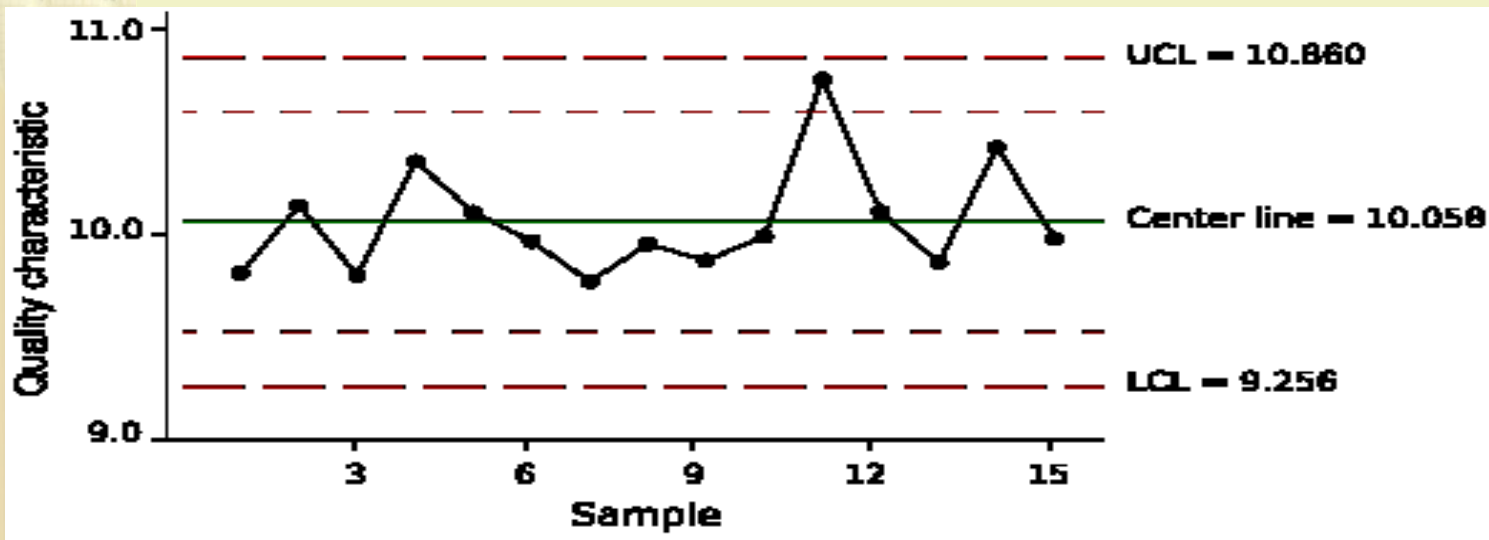


2 Run charts

- Run chart is a line graph in which data are plotted over time.
- known as a run-sequence plot is a graph that displays observed data in a time sequence
- Often, the data displayed represent some aspect of the output or performance of a manufacturing or other business process.
- used to track things like production volume, costs, customer satisfaction indices.

3 Control charts

Control charts, also known as Shewhart charts or process-behaviour charts, in statistical process control are tools used to determine whether or not a manufacturing or business process is in a state of statistical control.



Control Charts

Control Charts for Variables

Average Chart
(X Bar Chart)

Range Chart
(R Chart)

Control Chart for Attributes

Charts for Defective items

- Fraction Defective (P Chart)
- No. of Defectives (np Chart)

Charts for Defects per unit

- Constant Sample Size (C Chart)
- Varied sample size (U Chart)

4 FLOWCHARTS

A flowchart is a picture of the separate steps of a process in sequential order.

Elements that may be included are: sequence of actions, materials or services entering or leaving the process (inputs and outputs), decisions that must be made, people who become involved, time involved at each step and/or process measurements.

The process described can be anything: a manufacturing process, an administrative or service process, a project plan. This is a generic tool that can be adapted for a wide variety of purposes.

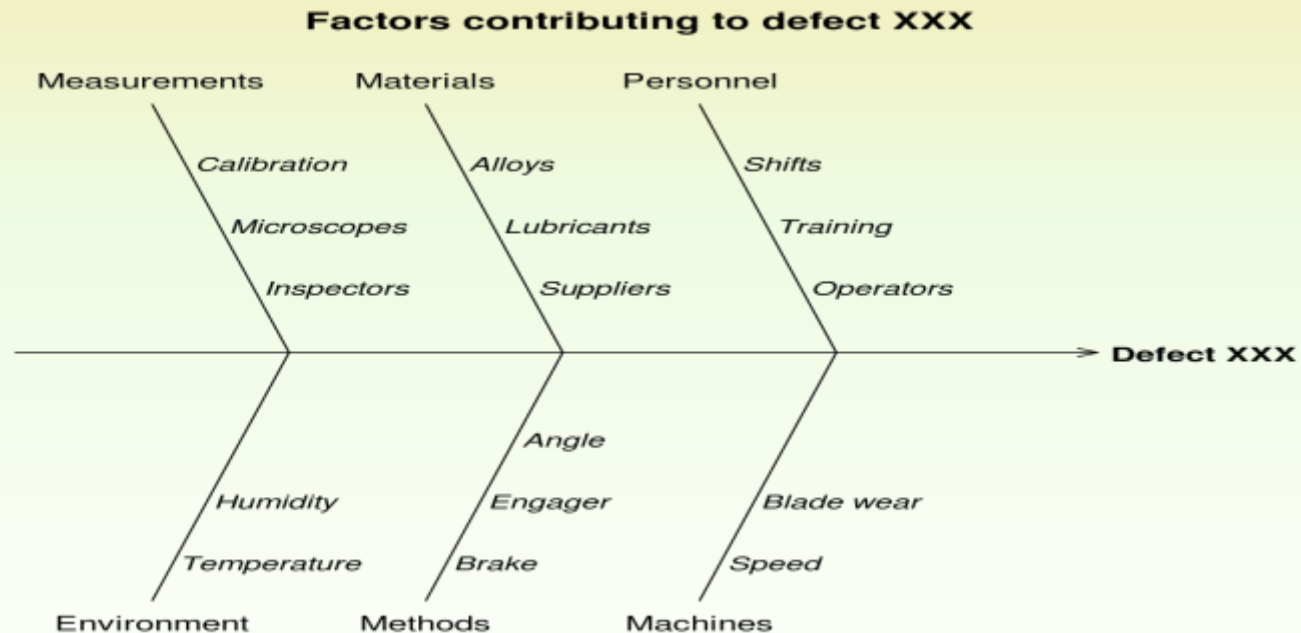
5 Pareto charts

- Principle: “Vital few Trivial many”
- Called 80 20 rule
- Approximately 20 percent of a group of items, people, inventory, causes accounts for 80 percent of the work, efforts, problems.

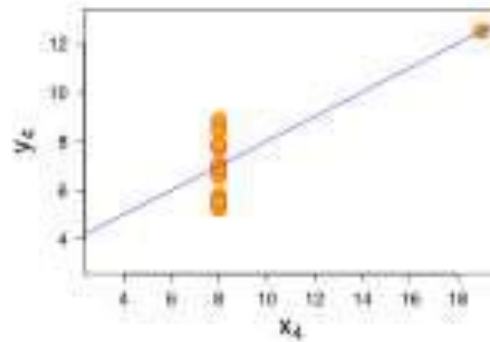
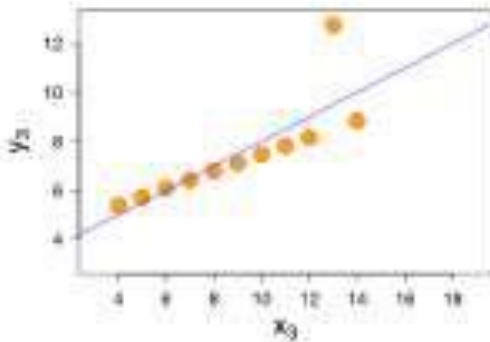
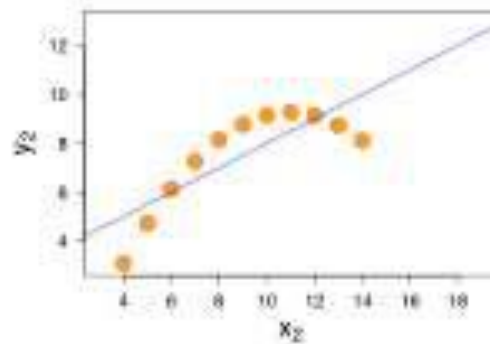
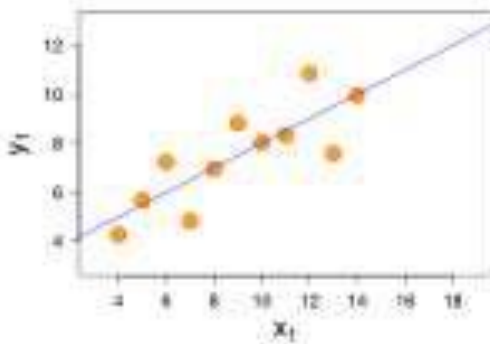
6 Ishikawa diagram

This diagram gives the relationship between quality characteristic and its factors. It is a pictorial presentation in which all possible causes and their effects are displayed.

The solution to the problem becomes simpler and easier if only true causes of the problem are identified.



7 scatter diagram



Scatter diagrams or scatter plots are used to determine whether relationships really exist between two process characteristics and the direction of the relationship.

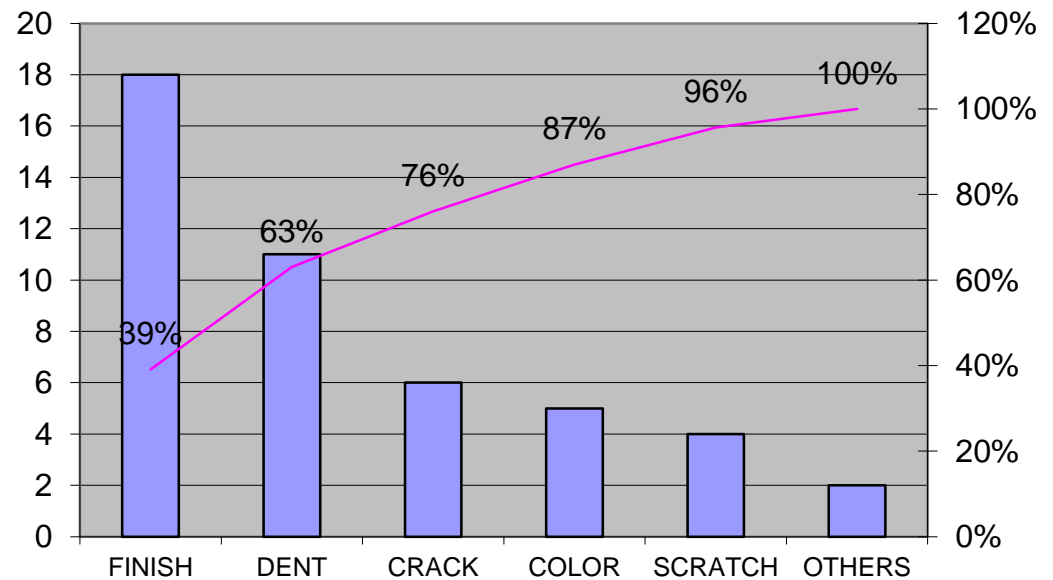
Source: <http://www.cqacademy.com>

Assessment Questions

Question: Construct a Pareto chart

Solution:

Category	Total
CRACK	6
SCRATCH	4
DENT	11
COLOR	5
FINISH	18
OTHERS	2



References

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