



BBA

Semester VI

Calicut University

Total Quality Management

Course Code: BBA6CJ305 • Module 3 Notes

1. Seven Traditional Tools of Quality

The Seven Quality Control (7 QC) tools provide a graphical and statistical foundation for problem identification and process troubleshooting.

Tool Name	Primary Function / Purpose	Operational Application
1. Check Sheet	Structured form for real-time data collection.	Recording defect frequencies at assembly lines.
2. Cause-and-Effect Diagram	Fishbone/Ishikawa diagram identifying root causes across 6Ms (Man, Machine, Material, Method, Measurement, Milieu).	Brainstorming underlying reasons for product defects.
3. Histogram	Bar chart showing frequency distribution of continuous process data.	Evaluating process capability and variation spread.
4. Pareto Chart	80/20 rule bar chart prioritizing vital few causes over trivial many.	Identifying the top 20% of defect types causing 80% of failures.
5. Scatter Diagram	Plot testing correlation between two variables.	Analyzing relationship between temperature and defect rate.
6. Control Chart	Run chart with Upper (UCL) and Lower (LCL) control limits.	Monitoring process stability over time to detect special cause variation.
7. Flowchart / Stratification	Visual diagram of process steps or data grouping.	Mapping operational workflows to identify bottlenecks.

2. Six Sigma Methodology (DMAIC)

Six Sigma aims for near-perfection in process execution (3.4 defects per million opportunities - DPMO).

D - Define & M - Measure

Define project goals and customer Critical-to-Quality (CTQ) requirements; measure current baseline process capability.

A - Analyze, I - Improve, C - Control

Analyze root causes of defects; improve process by eliminating root causes; control future process performance using SPC.

3. Quality Function Deployment (QFD) & Benchmarking

Translating customer Voice of the Customer (VOC) into technical engineering requirements via the House of Quality matrix; benchmarking best-in-class processes.

4. Taguchi Loss Function and Total Productive Maintenance (TPM)

Genichi Taguchi's quadratic loss function quantifying cost of quality variation; TPM strategies for zero equipment breakdowns and zero accidents.

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