

# **TOTAL QUALITY MANAGEMENT TOOLS**

# Measurement Techniques and Quality Strategies

- ✓ (1) data sheet
- ✓ (2) cause-and-effect diagram
- ✓ (3) scatter diagram
- ✓ (4) flowchart
- ✓ (5) Pareto chart
- ✓ (6) histogram
- ✓ (7) control chart

# Developing Control Charts

- ✓ *Control chart for variables*
- ✓ *Control charts for attributes*
- ✓ *X-Bar and R Charts*
- ✓ *P- Charts*
- ✓ *np-Charts*
- ✓ *c-Charts*

# Six sigma approach

- ✓ A benchmark in many industries
- ✓ A methodology used to deal with process variability, to measure and improve company's performance, practices and systems

# Six sigma approach

- ✓ DMAIC--Six Sigma Improvement Methodology
  - ✓ define,
  - ✓ measure,
  - ✓ analyze,
  - ✓ improve,
  - ✓ control

# Six sigma approach

✓ DMADV: Creating new process to perform at Six Sigma

- Define the project
- Measure the opportunity
- Analyze the process options
- Design the process
- Verify the performance

✓ **±6 Sigma versus ± 3 Sigma**

# Six sigma approach

- ✓ DMAIC (define, measure, analyze, improve, control): Six Sigma Improvement Methodology
- ✓ DMADV: Creating new process which will perform at Six Sigma
  - Define the project
  - Measure the opportunity
  - Analyze the process options
  - Design the process
  - Verify the performance
- ✓ **±6 Sigma versus ± 3 Sigma**

# Methods of Six Sigma

- ✓ Six Sigma Champions
- ✓ Six Sigma Master Black Belts
- ✓ Six Sigma Black Belts
- ✓ Six Sigma Green Belts



# Lean six sigma

- ✓ An improvement methodology to reduce the wastes and the variability of products
  - ✓ A trained team is essential
- ✓ **Six sigma vs Lean six sigma**