



SNS COLLEGE OF TECHNOLOGY

COIMBATORE-35



DEPARTMENT OF MECHANICAL ENGINEERING

UNIT -1

SIX SIGMA PRINCIPLES

Pareto Analysis:

Pareto Analysis is a decision-making technique used in Six Sigma and other quality improvement methodologies to identify the most important factors contributing to a problem, based on the **80/20 rule** (also known as the **Pareto Principle**). The idea behind this rule is that roughly 80% of effects come from 20% of the causes. By focusing on the critical 20%, you can make a significant impact on solving the majority of problems.

- 1. 80/20 Rule:** The Pareto Principle suggests that 80% of the problems or defects are typically caused by 20% of the causes. For example, 80% of customer complaints might stem from just 20% of the product features or services.
- 2. Focus on High-Impact Issues:** Pareto Analysis helps identify the most significant issues to tackle first, based on their frequency or impact. This enables more efficient use of time and resources by focusing on the most critical areas.
- 3. Prioritization:** It allows you to prioritize actions based on data. Instead of trying to solve everything at once, Pareto Analysis helps teams focus on addressing the few issues that will lead to the most significant improvement.

Example of Pareto Analysis in Action:

Let's say a company is analyzing **customer complaints** to improve customer satisfaction. They collect the following data on the types of complaints received:

Complaint Type	Frequency
Late delivery	60
Damaged goods	25
Incorrect items delivered	15
Poor customer service	10
Wrong billing	5

To perform Pareto Analysis:

- **Step 1:** List the complaints.
- **Step 2:** Quantify how often each complaint occurs.

- **Step 3:** Sort the complaints by frequency.

The Pareto Chart would look like this:

Complaint Type	Frequency	Cumulative %
Late delivery	60	60%
Damaged goods	25	85%
Incorrect items delivered	15	95%
Poor customer service	10	100%
Wrong billing	5	100%

- **Step 4:** Plot the Pareto Chart.
- **Step 5:** Analyze and prioritize:
 - **80% of the complaints** (Late Delivery and Damaged Goods) come from just **2 causes** (Late delivery and damaged goods), which represent **85% of all complaints**.
 - You can now prioritize improvements in **delivery logistics** and **packaging** to address the most critical issues.

By focusing efforts on these two areas, the company is likely to achieve the biggest improvement in customer satisfaction.

