



# SNS COLLEGE OF TECHNOLOGY

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## DEPARTMENT OF AEROSPACE ENGINEERING

### 19MEE304 Total Quality Management

**Topic:** Introduction - Need for quality

#### Introduction to Total Quality Management (TQM) – Need for Quality

#### Definition of Quality

- Quality refers to the degree to which a product or service meets customer requirements.
- Defined by **ISO 9000** as "the totality of features and characteristics of a product or service that bear on its ability to satisfy stated or implied needs."

#### Need for Quality

- **Customer Expectations:** Consumers demand high-quality products and services.
- **Global Competition:** Companies must maintain high standards to compete internationally.
- **Cost Reduction:** Quality reduces defects, rework, and waste.
- **Compliance:** Many industries require adherence to strict quality regulations.
- **Brand Reputation:** High quality improves brand image and customer loyalty.
- **Employee Satisfaction:** A quality-focused work environment leads to higher employee engagement.

#### Definition of TQM

- **Total Quality Management (TQM)** is a management philosophy that focuses on continuous improvement, customer satisfaction, and total employee involvement.
- It integrates **quality planning, control, assurance, and improvement** into every aspect of an organization.

#### Evolution of Quality Management

1. **Inspection Era** – Focused on detecting defects.
2. **Statistical Quality Control (SQC) Era** – Introduced statistical techniques for quality measurement.
3. **Quality Assurance Era** – Implemented preventive measures.
4. **TQM Era** – Comprehensive, organization-wide approach to quality.
5. **Six Sigma & Lean Quality** – Advanced methodologies for minimizing defects.

#### Principles of TQM

1. **Customer Focus** – Quality is determined by the customer's needs and expectations.

2. **Leadership Commitment** – Management must lead by example in quality initiatives.
3. **Continuous Improvement (Kaizen)** – Quality enhancement is an ongoing process.
4. **Employee Involvement** – Employees at all levels contribute to quality.
5. **Process Approach** – Focus on optimizing processes to improve output.
6. **Data-Driven Decision Making** – Use statistical tools for quality control.
7. **Mutually Beneficial Supplier Relationships** – Collaboration with suppliers for quality enhancement.

## Benefits of TQM

- Improved **customer satisfaction** and loyalty.
- Increased **efficiency** and reduced waste.
- Enhanced **employee morale** and teamwork.
- Stronger **brand reputation** and competitive advantage.
- Cost savings through defect prevention and process optimization.

## Key Contributors to TQM

- **W. Edwards Deming** – 14 Points for Quality Management.
- **Joseph Juran** – Juran Trilogy (Planning, Control, Improvement).
- **Philip Crosby** – "Zero Defects" and "Quality is Free."
- **Kaoru Ishikawa** – Fishbone Diagram and Quality Circles.
- **Genichi Taguchi** – Robust Design and Quality Loss Function.

## Case Study Example: Toyota's TQM Approach

- Toyota implemented **Kaizen (Continuous Improvement)** and **Just-in-Time (JIT)** to enhance quality and efficiency.
- Emphasis on employee involvement, root cause analysis, and waste elimination.
- Result: Toyota became a global leader in automobile manufacturing quality.

## Conclusion

Total Quality Management is a strategic approach that enhances quality across all levels of an organization. By focusing on customer satisfaction, continuous improvement, and employee involvement, companies can achieve long-term success and operational excellence.