Advanced Cost of Quality Analysis in Manufacturing Training Course

Professional Development Training Course Outline

Category	Manufacturing	**Duration**	10 Days
Base Fee	$3,000 USD	**Delivery Mode**	Online / On-site Hybrid

Course Introduction

In today’s highly competitive smart manufacturing and Industry 4.0 environment, organizations are under increasing pressure to reduce quality-related costs, eliminate waste, and maximize operational efficiency. Advanced Cost of Quality Analysis in Manufacturing Training Course is designed to equip professionals with cutting-edge tools and methodologies to accurately measure, analyze, and optimize prevention costs, appraisal costs, internal failure costs, and external failure costs. This training integrates modern Lean Manufacturing, Six Sigma, Total Quality Management (TQM), and data-driven quality analytics to drive sustainable profitability and zero-defect strategies.

This program provides a deep dive into quality cost optimization frameworks, predictive quality analytics, real-time defect tracking systems, and KPI-based cost reduction strategies. Participants will learn how leading global manufacturers leverage advanced COQ models, digital quality dashboards, ERP-integrated cost tracking, and AI-driven defect prediction systems to improve decision-making. The course is tailored for organizations aiming to achieve operational excellence, ISO 9001 compliance, customer satisfaction excellence, and global competitiveness in manufacturing excellence systems.

Programme Curriculum

Advanced Cost of Quality Analysis in Manufacturing Training Course

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Course Duration

10 days

Course Objectives

1. Understand advanced Cost of Quality (COQ) frameworks in modern manufacturing systems
2. Apply Lean Six Sigma methodologies to reduce quality-related waste
3. Analyze prevention, appraisal, and failure cost structures
4. Implement real-time quality cost tracking systems
5. Develop data-driven quality performance dashboards
6. Optimize manufacturing defect prevention strategies
7. Integrate COQ analysis with ERP and MES systems
8. Use predictive analytics for quality cost reduction
9. Improve supplier quality cost management systems
10. Identify hidden costs using advanced root cause analysis tools
11. Apply statistical quality control (SQC) for cost optimization
12. Design continuous improvement (Kaizen) cost reduction models
13. Achieve zero-defect manufacturing through COQ optimization strategies

Target Audience

1. Quality Assurance Managers
2. Manufacturing Engineers
3. Industrial Engineers
4. Production Supervisors
5. Lean Six Sigma Black Belts & Green Belts
6. Operations Managers
7. Supply Chain & Procurement Professionals
8. Plant & Factory Managers

Course Modules

Module 1: Fundamentals of Cost of Quality (COQ)

- COQ concepts and classifications
- Prevention vs failure cost structure
- Quality cost impact on profitability
- Industry benchmarks and standards
- COQ measurement techniques
- **Case Study:** Automotive assembly plant COQ breakdown analysis

Module 2: Quality Cost Framework in Manufacturing

- Traditional vs modern COQ models
- Cost categorization methods
- Manufacturing cost flow mapping
- KPI alignment with COQ
- Real-world benchmarking systems
- **Case Study:** Electronics manufacturing cost mapping

Module 3: Prevention Cost Optimization

- Quality planning strategies
- Process design improvements
- Employee training impact on cost
- Supplier quality assurance systems
- Preventive maintenance integration
- **Case Study:** Aerospace preventive cost reduction model

Module 4: Appraisal Cost Management

- Inspection cost optimization
- Testing and validation systems
- Automation in quality inspection
- Sampling strategies
- Digital inspection tools
- **Case Study:** Pharmaceutical quality inspection optimization

Module 5: Internal Failure Cost Reduction

- Scrap and rework analysis
- Process failure identification
- Lean defect elimination
- Root cause analysis tools
- Waste minimization strategies
- **Case Study:** FMCG production waste reduction

Module 6: External Failure Cost Control

- Customer complaints cost analysis
- Warranty claim reduction
- Product recall prevention
- Brand reputation impact
- Customer satisfaction metrics
- **Case Study:** Automotive recall cost mitigation

Module 7: Lean Manufacturing & COQ Integration

- Lean principles in quality cost reduction
- Value stream mapping
- Waste elimination strategies
- Continuous flow optimization
- Kaizen implementation

- **Case Study:** Lean transformation in steel manufacturing

Module 8: Six Sigma for Cost of Quality

- DMAIC methodology
- Defect reduction techniques
- Sigma level improvement
- Statistical analysis tools
- Process capability improvement
- **Case Study:** Six Sigma defect reduction in electronics

Module 9: Data Analytics in COQ

- Big data in quality management
- Predictive analytics tools
- Data visualization dashboards
- AI in quality cost prediction
- Real-time analytics systems
- **Case Study:** Smart factory predictive COQ system

Module 10: ERP & Digital Integration

- ERP-based cost tracking
- MES integration for COQ
- Automated reporting systems
- Digital quality control systems
- Cloud-based quality analytics
- **Case Study:** ERP-driven COQ optimization in manufacturing

Module 11: Supplier Quality Cost Management

- Supplier evaluation systems
- Incoming quality inspection
- Vendor cost optimization
- Supply chain risk reduction
- Supplier collaboration models
- **Case Study:** Automotive supplier cost optimization

Module 12: Root Cause Analysis Techniques

- 5 Whys methodology
- Fishbone diagram usage
- Failure mode analysis
- Corrective action systems
- Problem-solving frameworks
- **Case Study:** Machine breakdown cost analysis

Module 13: KPI & Performance Measurement

- COQ performance indicators
- Quality dashboards design
- Benchmarking KPIs

- Cost tracking metrics
- Reporting systems
- **Case Study:** KPI-driven quality improvement in plant operations

Module 14: Continuous Improvement Systems

- Kaizen philosophy
- PDCA cycle application
- Employee involvement strategies
- Innovation in cost reduction
- Sustainability integration
- **Case Study:** Continuous improvement in textile manufacturing

Module 15: Strategic COQ Optimization

- Enterprise-wide quality strategy
- Financial impact analysis
- ROI of quality initiatives
- Global best practices
- Future of COQ systems
- **Case Study:** Global manufacturing excellence transformation

Training Methodology

This course employs a participatory and hands-on approach to ensure practical learning, including:

- Interactive lectures and presentations.
- Group discussions and brainstorming sessions.
- Hands-on exercises using real-world datasets.
- Role-playing and scenario-based simulations.
- Analysis of case studies to bridge theory and practice.
- Peer-to-peer learning and networking.
- Expert-led Q&A sessions.
- Continuous feedback and personalized guidance.

Register as a group from 3 participants for a Discount

Send us an email: info@fineskilltrainingcenter.org or call *+254769199797*

Certification

Upon successful completion of this training, participants will be issued with a globally- recognized certificate.

Tailor-Made Course

We also offer tailor-made courses based on your needs.

Key Notes

a. The participant must be conversant with English.

b. Upon completion of training the participant will be issued with an Authorized Training Certificate

c. Course duration is flexible and the contents can be modified to fit any number of days.

d. The course fee includes facilitation training materials, 2 coffee breaks, buffet lunch and A Certificate upon successful completion of Training.

e. One-year post-training support Consultation and Coaching provided after the course.

f. Payment should be done at least a week before commence of the training, to Fineskill Training Center account, as indicated in the invoice so as to enable us prepare better for you.

Upcoming Scheduled Sessions

Start Date	End Date	Location	Price
23 Nov 2026	04 Dec 2026	Online	$2,000
23 Nov 2026	04 Dec 2026	Physical	$3,000
23 Nov 2026	04 Dec 2026	Physical	$6,000
23 Nov 2026	04 Dec 2026	Physical	$6,000
23 Nov 2026	04 Dec 2026	Physical	$12,000
23 Nov 2026	04 Dec 2026	Physical	$9,000
23 Nov 2026	04 Dec 2026	Physical	$12,000
23 Nov 2026	04 Dec 2026	Physical	$12,000

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