Unit 1: Introduction to Quality Management

- Definition & Dimensions of Quality
- Quality Control vs Quality Assurance
- Small-Q vs Big-Q & Evolution of Quality Movement
- Total Quality Management (TQM) & its Foundation
- Cost of Poor Quality
- Theory of Constraints
- ISO
- Six Sigma
- Lean
- Kaizen
- Activities & Quiz

Unit 2: Introduction to Six Sigma I

- Six Sigma & its Goals
- Six Sigma as a Performance Measure, Problem Solving Tool, & Management Philosophy
- Problem Solving Tools Used in Six Sigma & its Evolution
- Variation and Significance
- Critical-To-Quality Measures & Specification Limits
- Definition & Understanding of Defects & Defect Opportunities
- Source of Defects – Variation & Off-Centered
- Quiz

Unit 3: Introduction to Six Sigma II

- Sigma Scores and Percentages
- Defectives per Million & Defects per Million Opportunities
- Relationship between Sigma Scores and DPMO and Percentages
- Lean, Goals of Lean & Lean Six Sigma

  ♻ Six Sigma Problem Solving Methodologies
  ♻ Six Sigma Tool Kit & Business Process Management Model
  ♻ Activities & Quiz

  ♻ Activity 1– Consolidating Six Sigma Views

Unit 4: Business Process Management System

  ♻ Process, Process Inputs, & Process Output & their relation
  ♻ Establishing Relationship Between 'Y' & 'X'
  ♻ Business Processes & its Classification
  ♻ Definition of Big Y, Linking Big 'Y's to Process 'Y's, & CTQ Tree
  ♻ Organizational Silos vs Process Centricity
  ♻ Business Process Management System (BPMS)
  ♻ Focus & Key elements of BPMS
  ♻ Dashboard, its Application & 7 Elements
  ♻ Balanced Scorecard & its Focus
  ♻ BSC Metrics Link to the Organization
  ♻ Activities & Quiz

Unit 5: Six Sigma Problem Solving

  ♻ Business Problem and Six Sigma Project & its Sources
  ♻ Generic Model & Approach to Business Problem Solving
  ♻ Logic and Intuition, Just do It, DMAIC, & DFSS – IDOV
  ♻ Selecting the Right Problem Solving Method
  ♻ Need & Criteria for Project Selection
  ♻ Project Selection tools - Pareto Diagram, & Project Selection Matrix
  ♻ DMAIC Project Roadmap & Characteristics of Problem Solving
  ♻ Project Tools, Tollgate Review & Project Durations
  ♻ DFSS Project Roadmap
  ♻ Activities & Quiz

Unit 6: Six Sigma Roles & Responsibilities

  ♻ Roles & Responsibilities
  ♻ Yellow, Green, Black, & Master Black Belt
  ♻ Champion / Process Owner & Deployment Champion
  ♻ Certification Criteria to be a Yellow Belt, Green Belt, Black Belt & Master Black Belt
  ♻ Career Chances: Six Sigma Professionals
  ♻ Types of Certification & ASQ Certification Criteria
  ♻ Canopus Six Sigma Green Belt Course
  ♻ Quiz

Unit 7: Listening to Customer

- Customer – Internal & External
- Voice of Customer (VOC) & Need for Voice of Customer
- Verbatim & Verbatim to Requirements
- Gather VOCs – Direct & Indirect Method
- Methods of Gathering VOC & Analyze VOC
- Definition & Procedure for Affinity Diagram
- Customer Priorities & Kano Model
- Customer Requirements – Must-Be's, Delighters, One Dimensional
- Quality Function Deployment & Flow Down of CTQs in House of Quality
- Importance & When to use QFD
- Activities & Quiz

Unit 8: Team Dynamics

- Team Stages & Team Types
- Team Communication & Need for Team Communication
- Types of Communication - Top-Down, Bottom-Up, Horizontal
- Practical Application of Communication
- Negative Dynamics & Types of Negative Dynamics
- Groupthink & Live Case Study – The Titanic, Facts, Symptoms
- Observable Consequences
- Team Motivation & Need for Motivation
- Interpersonal Relationships
- Quiz

Unit 9: Define - Completing a Project Charter

- Definition & Elements of Project Charter
- Business Case & Problem Statement
- Measure of Success of a Project
- Primary and Secondary Metrics
- Goal Statement
- Team Members & Roles
- Project Benefits, Translation Plan, & Project Duration Guidelines
- Project Kick-off & Weekly Meetings
- Need for Project Scoping, Project Scoping & Tools
- Procedure to use In Frame / Out Frame
- Activities & Quiz

Unit 10: Define - Process Mapping Tools

- ♻ Process Mapping Tools, its Purpose, & Types
- ♻ Definition & Purpose of SIPOC, Cross-Functional Process Maps, Process Flowchart, Standard Operating Procedure
- ♻ Procedure of SIPOC & Cross-Functional Process Map
- ♻ Process States - As-is, Should-be & To-be
- ♻ Value to customer & Definition & Purpose of Process Value Analysis
- ♻ Value Added, Non Value Added & Value Enabling Activities
- ♻ Process Cycle Efficiency
- ♻ Important Terms & Procedure of Process Value Analysis
- ♻ Activities & Quiz

- ♻ Activity 1 - SIPOC – Live Case Study
- ♻ Activity 2 - Create Process Map - Live Case Study
- ♻ Activity 3 - Identifying NVA – Live Case Study

Unit 11: Measure - Cause & Effect Relationships

- ♻ Definition of Cause & Effect
- ♻ Types of Causes – Possible, Potential, & Root Causes
- ♻ Cause & Effect Diagram
- ♻ Structure, Purpose, Benefits & Procedure of Cause & Effect Diagram
- ♻ Definition & Procedure for Performing 5 Why
- ♻ Definition & Procedure to Construct a Cause & Effect Matrix
- ♻ Definition of Root Cause Analysis
- ♻ Definition & Procedure for Practical RCA
- ♻ Definition of Graphical RCA
- ♻ Definition of Analytical RCA
- ♻ Activities & Quiz
- ♻ Activity 1 - Cause & Effect
- ♻ Activity 2 - Cause & Effect Matrix

Unit 12: Measure - Data Types

- ♻ Data Collection Roadmap
- ♻ Types of Data - Attribute, Variable & Locational Data
- ♻ Comparison & Conversion between Variable & Attribute Data
- ♻ Types of Measurement Scales – Nominal, Ordinal, Interval, & Ratio Scale
- ♻ Quiz

Unit 13: Measure - Data Sampling

- ♻ Definition, Need & Applications of Data Sampling
- ♻ Sampling Strategy & Approach for Sampling Plan

○ Population & Process Sampling
○ Sample Size Computation & Need
○ Computing Discrete & Continuous Data Sample Size
○ Quiz

Unit 14: Measure - Data Collection

○ Data Collection Roadmap
○ Data Collection Plan, Template
○ Data Collection Methods - Check sheet, & Coding Data
○ Quiz

Unit 15: Measure - Measurement System Analysis

○ Elements of Measurement Systems – Human, System, & Environment
○ Attributes of Good Measurement System
○ Definition, Need & Purpose of Measurement System Analysis
○ Types of MSA - Discrete MSA & Continuous MSA
○ Definition of GR&R
○ Definition of Precision, P/T & P/TV
○ No. of Distinct Categories
○ Procedure to Conduct Discrete & Continuous MSA
○ Organizing Data
○ Live Case Scenario – Continuous GR&R
○ Activities & Quiz

Unit 16: Measure - Intro to Business Statistics I

○ Need for Statistics in Business
○ Statistics, Population, Population Parameter, Sample, & Sample Statistic
○ Types of Statistics - Descriptive Statistics & Analytical Statistics
○ Probability, Statistical Experiment, Event, & Rules of Probability
○ Activities & Quiz
○ Activity 1 – Probability Rule

Unit 17: Measure - Intro to Business Statistics II

○ Definition of Probability Distribution, Types, & Importance
○ Measures of Central Tendency - Mean, Median, Mode
○ Relationship between Mean Median & Mode & Types of Distributions
○ Measures of Dispersion - Range, Span, Variance, Standard Deviation
○ Types of Descriptive Statistics - Graphical, Numerical
○ Definition, Application & Properties of a Normal Distribution & Outlier

Canopus
Business Management Group

- Confidence Limits, Confidence Level & Confidence Intervals
- Definition of Central Limit Theorem & its Application
- Activity :Descriptive Statistics
- Quiz

Unit 18: Measure - Graphical Methods

- Definition, Interpretation, & Procedure of Histogram
- When to use a Graphical Summary
- Definition, Interpretation, & Procedure of Box Plot
- Skewness & Kurtosis
- Normality Test & its Procedure
- Definition of Stem-and-Leaf Plot, Run Charts, Scatter Plots
- Run Chart Patterns & Interpretation with Run table
- Interpretation of Scatter Plots - Direction, Shape, & Strength of Relationship
- Activity :Run Chart, Box Plot
- Quiz

Unit 19: Measure - Project Planning & Management Tools

- Six Sigma Project Management Practices
- Project Schedule - Gantt Chart
- Activity Network Diagrams, Uses & Procedure
- Critical Path Method
- PERT Chart & its Parameters
- Interrelationship Digraph & Procedure
- Tree Diagram & Procedure
- Prioritization Matrix & Procedure
- Matrix Diagrams & its types
- PDPC
- Quiz

Unit 20: Measure - Assessing Capability & Performance

- Measures of Current Performance
- Process Capability, Process Capability Study & Indices
- Traditional Measures - C_p & C_{pk} & their Acceptable Limits
- Sigma Capability, Computation of Sigma Scores & Z Tables
- Traditional Measures & Sigma Capability
- Impact of time of Process Capability
- Long Term Vs Short Term & Long Term Indices
- Relationship between Long & Short Term & Cpm
- Quiz

Unit 21: Analyze - Theory of Hypothesis Testing

- Hypothesis - Introduction
- Need for Statistical Significance & Statistical Inference
- Hypothesis Testing, Applications & Basics
- Hypothesis Statements - Null & Alternative Hypothesis
- Significance Levels, & Alpha Values
- Tests of Significance - Statistical & Practical Significance
- Test Statistic & P Value & Its Interpretation
- Errors in Hypothesis Testing & Types of Errors
- Quiz

Unit 22: Analyze - Performing Hypothesis Test

- Hypothesis Tests for Means, Variance, Proportions
- Selection of Hypothesis Tests & Criteria for Selection
- Z-Test, Z-statistic, & Assumptions
- t-Test, t-Statistic, 1-t Test & 2-t Test, & Assumptions
- Paired Data - Paired t-Test, Preparation & Procedure
- ANOVA & F-test, Assumptions, Preparation & Procedure
- Chi-square Test & Statistic, Assumptions, Preparation & Procedure
- Proportions Test - 1-p Test & 2-p Test, Assumptions, Preparation & Procedure
- Activities & Quiz

Unit 23: Analyze - Correlation & Regression

- Correlation, Regression, Scatter Plots, & Correlation Coefficient
- Procedure of Simple Linear Correlation & Interpretation of Scatter Plots
- Application of Regression & its Types
- Regression Line of Fit, Regression Equation, & its Statistical Significance
- R-SQ Value & Procedure of Simple Regression
- Prioritization of Causes, & Pareto Principle
- Definition & Procedure for Pareto Chart
- Definition & Procedure of Control-Impact Matrix
- Activities & Quiz

- Activity 1 – Correlation
- Activity 2 – Regression
- Activity 3 – Pareto Diagram

Unit 24: Improve - Lean Management Systems

- Definition, Origin, Principles & Goals of Lean
- Value, Value Stream, Concept of Muda (Waste) & Categories of Waste

- 7 Types of Wastes, How to Identify them, & Waste Identification Template
- Value Stream Mapping (VSM), Symbols, Benefits & Procedure
- Push System, Pull System, Single Piece Flow, 5S, Kaizen, SMED, Poka-Yoke
- Types of Poka-Yoke - Shut Down, Prevention, Warning, Instructions
- Heijunka & Visual Control
- Quiz

Unit 25: Improve - Generating & Screening Solutions

- Approach to Solution Generation, Definition, & Types of Lateral Thinking
- Edward De Bono, Definition & Concept of Random Stimulus
- Brainstorming – Unstructured, & Structured Brainstorming
- Brainstorming Principles & Types
- Solution Screening Techniques, Need, Approach, & Filtering Techniques
- Definition of N/3 Voting & Procedure
- Definition of Pay Off Matrix & Procedure
- Definition of Criteria Based Matrix (CBM) & Procedure
- Definition of Pugh Matrix & Procedure
- Quiz

Unit 26: Improve - Failure Mode Effects Analysis

- Definition & Elements of Process Risk
- Managing Six Sigma Process Risks
- Tools Used in Risk Management, Definition & Approach to FMEA
- Definition of Failure Modes, Effects, Cause, Current Controls
- Prioritizing Risks, Definition of Risk Priority Number & Calculation
- Definition of Severity & Severity Rating Scale
- Definition of Occurrence & Occurrence Rating Scale
- Definition of Detection & Detection Rating Scale
- Risk Mitigation Strategies & Application of FMEA
- Definition of DFMEA
- Quiz

Unit 27: Improve - Design of Experiments

- Definition of Experiment, Need & Approaches to Experimentation
- Definition of Design Of Experiment (DOE), & Elements of DOE
- One Factor Design, Factorial Design, Response Surface Design, Reliability DOE
- Performing DOE
- Main Effects & Main Effects Plot
- Interaction & Interaction Plot
- Pareto
- Activities & Quiz

Canopus
Business Management Group

Unit 28: Control - Control Plan

- Process Control, Role of Process Control in 6σ projects & in Control Phase
- Process Control Plan, Control Parameters, Method of Control
- Reaction Plan & Procedure
- Statistical Process Control (SPC), History, & its Application
- Definition, Purpose, Selection & Interpretation of Control Charts
- Control Limits, Normal Distribution, Specification Limits
- Stability Tests & Guidelines for Stability Tests
- Solutions Implementation & Statistical Validation of Improvements
- Post-Improvement Capability Analysis, Project Documentation & Benefits
- Project Closure & Translation Plan
- Quiz