Improvement Tools and Methods
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- Value Stream Mapping
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Our mission is to help our clients improve their bottom line through improvements in quality and productivity. We facilitate improvements in quality and productivity through the combination of consulting, facilitation and training services that provide the optimal benefit to the client.

Course Listings: Improvement Tools and Methods

Advanced Product Quality Planning (APQP)
Automotive suppliers can comprehensively learn how to implement and achieve effective quality planning based on the Ford, DaimlerChyrsler and General Motors requirements. Each phase of the APQP process is reviewed so that the participant understands the intent of APQP, how APQP integrates with other continuous improvement tools such as FMEA, MSA, PPAP and how it fits into the larger picture of the ISO/TS 16949 quality system.

Who Should Attend:
Individuals who are involved with any aspect of quality planning including management, sales, engineering, quality, purchasing and manufacturing.

Prerequisite:
Basic understanding of FMEA, MSA, SPC and other continual improvement tools.

CEU Credits: 1.6

Duration: 16 Hours (2-day course)

Course Content:

- APQP Introduction
  - What is APQP?
  - Quality Systems and APQP
  - Organizing The APQP Team
- Project Management Concepts
  - What Is a Project?
  - What is Project Management?
  - The Product Quality Planning Timing Chart
  - APQP Phase Element Input/Output
- Planning and Defining the Program
  - Typical Activities and Phase Inputs and Outputs
- Product Design and Development
  - Typical Activities and Phase Outputs
- Process Design and Development
  - Typical Activities and Phase Outputs
- Product and Process Validation
  - Typical Activities and Phase Outputs
- Feedback, Assessment and Corrective Action
  - Typical Activities and Phase Outputs
- Control Plans
  - Types of Control Plans
  - Process Analysis
  - The Control Plan Form

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Course Listings: Improvement Tools and Methods

Design FMEA
Suboptimal designs often results in downstream problems such as product redesign, product nonconformities or warranty issues. Design FMEA is a methodology used to reduce design risk to an organization and its customers. Using the DFMEA methodology, an organization can evaluate the risks in its product designs, prioritize those risks and take targeted action to reduce that risk, thus proactively addressing potential quality, cost, safety and delivery concerns. This workshop-intensive seminar addresses each step of the DFMEA process and allows participants to work in a team environment during the construction of a DFMEA.

Who Should Attend:
Individuals from engineering, quality, purchasing manufacturing or other areas who might participate in the development of a Design FMEA.

Prerequisite: None

CEU's Credit: 1.6

Duration: 16 Hours (2-day course)

Course Content:

- Introduction to FMEA
  - The FMEA Process Within a System of Advanced Quality Planning
  - FMEA and the Overall Improvement Strategy
  - Interrelationships Between System, Design and Process FMEA
  - QFD and its Interrelationship to Design FMEA
  - The Benefits of Design FMEA
- The FMEA Process
  - FMEA: A Team Effort
  - Information Sources for Use in the Design FMEA
  - Using Functional Block Diagrams with Design FMEA
  - Failure Mode Brainstorming and Evaluation
  - Using the Cause and Effect Diagram to Analyze Failure Modes
  - Identification of Current Controls
  - Estimating the:
    - Severity of the Potential Effects
    - Occurrence Rate of Cause/Failure Mode Mechanism
    - Capability of Design Process Controls to Detect the Failure Mode
  - Documenting the FMEA
- Using FMEA to Improve Designs
  - Prioritizing Failure Modes
  - Developing Recommended Actions
  - Using Design FMEA to Drive:
    - Product Design Changes
    - Prototype Control Plan
    - Process FMEA
  - The Design FMEA as a Living Document

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Course Listings: Improvement Tools and Methods

Diagnostic Troubleshooting
Skilled troubleshooters are highly sought after and their valuable skills have a direct impact on a company's "bottom-line". Participants in this activity-based, three-day seminar learn the importance of using a diagnostic approach to determining the true causes of machine related problems and selecting permanent solutions to those problems. Case studies and real-world examples are used throughout the course and allow participants opportunities to try various troubleshooting tools and develop a diagnostic approach to resolving machine related problems and failures.

Who Should Attend:
Technicians, maintenance personnel, manufacturing staff and anyone else responsible for troubleshooting manufacturing processes.

Prerequisite: None

CEU Credits: 2.4

Duration: 24 Hours (3-day course)

Course Content:

- Introduction to Diagnostic Troubleshooting
  - What is Diagnostic Troubleshooting?
  - Overview of the Diagnostic Troubleshooting Process
  - The Value of Troubleshooters
  - Types and Categories of Machine Related Problems
- Determine and Verify the Root Cause
  - The Root Cause Analysis Process
  - Gathering Information
  - Troubleshooting Tools
- Select and Validate the Solution
  - Determining Potential Solutions
  - Selecting the Most Appropriate Solution
  - Decision Making Tools
  - Adverse Consequence Analysis
  - Verifying and Validating the Solution
- Prevent Future Problems
  - Preventing Recurrence
  - Error-Proofing Methodologies
  - Exploring Other Opportunities For the Solution
- Documenting the Results
  - Creating An Incident Report

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Course Listings: Improvement Tools and Methods

Mistake Proofing
Mistake proofing (also called error proofing or poke yoke) is a highly efficient and cost effective method for preventing defects. Learn the different mistake proofing methods and see examples of mistake proofing in real world environments. The focus of this seminar is to find technical, not behavioral, solutions for process problems. In addition to the traditional manufacturing application, transactional, safety and environmental examples are also covered.

Who should attend:
All individuals who will be involved with developing mistake-proofed processes.

Prerequisite:
Exposure to FMEA concepts will prove helpful, but is not required.

CEU Credits: 0.8

Duration: 8 Hours (1-day course)

Course Content:

- What is Mistake Proofing?
  - The History of Mistake proofing
  - The Concept of Mistake Proofing
  - Mistake Proofing vs. Error Proofing
- Mistake Proofing Methods and Tools
  - Sequence Restrictors
  - Characteristics Methods
  - Variation from Fixed Values Methods
- Identifying and Prioritizing Targets for Mistake Proofing
  - Sources of Data
  - Using a Prioritization Matrix
  - Assessing the Level of Difficulty
- Structuring an Organizational Mistake Proofing Program
  - Key Success Factors
- Transactional, Safety and Environmental Applications of Mistake Proofing
  - Transactional Process
  - Safety
  - Environmental
- Mistake Proofing Resources
  - Informational Resources
  - Equipment Resources

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Course Listings: Improvement Tools and Methods

Geometric Dimensioning and Tolerancing (GD&T)
Improve the performance and understanding of the engineering function with Geometric Dimensioning and Tolerancing. The seminar provides participants with the core knowledge that follows the ASME Y14.5M1994 standard.

Who should attend:
Design, tooling and process engineers, quality managers, quality engineers, CAD operators, inspectors, and tool and die makers.

Prerequisite: None

CEU Credits: 1.6

Duration: 16 Hours (2-day course)

Course Content:

- Introduction
  - Background and History
  - Advantage of Geometric vs. Coordinate Dimensioning
  - Terminology, Symbols and Definitions
  - The Feature Control Frame
  - Proper Creation of Datums and Datum Reference Frames
- The Rules
  - Fundamental Dimensioning Rules
  - Rule #1 (Envelope Principle)
  - Rule #2
  - Virtual Condition
  - Proper Size-Gaging Technniques
- Interpretation
  - Use of Material Conditions
  - Determining Tolerance Zone Shapes
  - Zero-Position Tolerance at Maximum Material Condition
  - Fixed and Floating Fastener Equations
  - Projected Tolerance Zones
- Location and Runout Controls
  - Position, Profile, Concentricity, Symmetry and Runout
- Form Controls
  - Straightness, Flatness, Cylindricity and Circularity
- Orientation Controls
  - Angularity, Perpendicularity and Parallelism

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Course Listings: Improvement Tools and Methods

Process FMEA with Control Plans and Reaction Plans
Evaluate and prioritize the risks in your processes. Take targeted action to reduce risk, thus proactively addressing potential quality, costs, safety and delivery concerns. This workshop-intensive seminar addresses each step of the PFMEA process and allows participants to work in a team environment during the construction of a PFMEA.

Who should attend:
Individuals from engineering, quality, purchasing manufacturing or other areas who might participate in the development of a Process FMEA.

Prerequisite: None

CEU Credits: 1.6

Duration: 16 Hours (2-day course)

Course Content:

- FMEA and Quality Systems
  - ISO/TS 16949
  - PPAP
  - APQP
- Basic FMEA Concepts and Terminology
  - The FMEA and Control Plan Relationship
  - Definition and Purpose of FMEAs
  - FMEAs and Risk Reduction
  - Types of FMEAs
  - The Benefits of Process FMEA
- Team Approach to the Process FMEA
- Defining the Process with Process Flow Diagrams
- Process Functions and Failure Modes
- Cause-Failure Mode-Effect Diagrams
  - Understanding the Cause/Effect Relationship
  - Creating the Cause-Failure Mode-Effect Diagram
- Current Process Controls
  - Types of Controls
- Risk Analysis
  - Estimating the:
    - Severity of the Potential Effects
    - Occurrence Rate of Cause/Failure Mode Mechanism
    - Capability of Manufacturing Process Controls to Detect the Failure Mode
- Documenting the FMEA using the FMEA form
- Risk Reduction by Taking Action
- Keeping the FMEA Alive
- Developing Control Plans from the PFMEA
- Developing Reaction Plans from the PFMEA

Each participant will receive a comprehensive manual and a Certificate of Completion at the close of the seminar.

Improvement Tools and Methods
- Advanced Product Quality Planning (APQP)
- Design Failure Mode & Effects Analysis (DFMEA)
- Diagnostic Troubleshooting
- Geometric Dimensioning and Tolerancing (GD&T)
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Course Listings: Improvement Tools and Methods

Production Part Approval Process (PPAP)
The Product Part Approval Process is required as part of the ISO/TS 16949 quality standard. Comprehensive and complete PPAP submissions are beneficial to increasing efficiency, decreasing rework and improving customer satisfaction and confidence. In this one-day seminar, participants learn the steps necessary to develop and produce a PPAP package that meets the requirements of DaimlerChrysler, Ford and General Motors.

Who should attend:
Individuals involved with PPAP submissions including personnel in quality, engineering and those involved in the testing or measurement of PPAP sample parts.

Prerequisite: Basic knowledge of APQP is helpful, but not required.

CEU Credits: 0.8

Duration: 8 Hours (1-day course)

Course Content:

- Introduction to PPAP
  - History
  - Purpose
  - Link to QS-9000 and ISO/TS 16949
- Detailed PPAP Requirements
  - Significant Production Run
  - Testing Services
  - The PPAP File
  - Design and Process FMEAs
  - Control Plan
  - Dimensional, Material, Appearance, and Performance Results
  - Initial Process Studies
  - Measurement Systems Analysis
  - Product Samples
  - Unique Checking Aids
- Making the PPAP Submission
  - Submission Requirements
  - Submission Levels
- After the PPAP Submission
  - Submission Status
  - PPAP Record Retention Requirements
- Completing the PPAP Package
  - Part Submission Warrant (PSW)
  - Appearance Approval Report
  - Dimensional, Material and Performance Results Forms
- Customer and Industry Specific Requirements

Each participant will receive a comprehensive manual and a Certificate of Completion at the close of the seminar.

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Course Listings: Improvement Tools and Methods

Team Problem Solving (TPS)
This seminar provides participants with the framework and knowledge to implement high-impact, efficient team problem solving. Participants are taught each step of the problem solving process, from defining the problem thorough verification of solution effectiveness. At each step of the process, participants are assembled into teams and sequentially work through a case study requiring the use of the TPS framework and multiple team problem solving skills.

Who should attend:
Individuals involved with analysis of process data underlying quality and productivity improvement.

Prerequisite: None

CEU Credits: 1.6

Duration: 16 Hours (2-day course)

Course Content:

- Introduction to Problem Solving
  - Problem Solving Requirements
  - Problem Solving Attributes
  - Prevention vs. Detection
- Teams
  - Brainstorming
  - Consensus
  - Synergy
  - Team Member Attributes
  - Meeting Skills
- The Team Problem Solving Process
  - Different Team Problem Solving Processes
  - Overview of TPS
- Step 0-Prepare the Team
  - When to use TPS
  - The Symptom
  - Management Commitment
  - Business Operating System
  - Pareto Chart
  - Trent Chart
  - Paynter Chart
- Step 1-Establish the Team
  - Team Member Selection
  - Meeting Rules
- Step 2-Describe the Problem
  - The Problem Statement
  - Is/Is Not Analysis
  - Process Flow Diagram
  - Cause and Effect Diagram
  - Scatter Diagram
- Step 3-Containment Action
  - Decision-making Matrix
  - Verification
  - Validation
  - Containment Failure Mode and Effects Analysis

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Course Listings: Improvement Tools and Methods

Team Problem Solving (TPS) — Continued

Course Content:

- Step 4-Identify and Verify Root Cause
  - Comparative Analysis
  - Occurrence and Escape Root Cause
  - Design of Experiments
  - Measurement System Analysis
- Step 5-Select and Verify Corrective Action
  - Risk Analysis
  - Mistake Proofing
  - Benchmarking
  - Design for Manufacturability and Assembly
- Step 6-Implement and Validate Corrective Action
  - Advanced Quality Planning
  - Project Management
  - Production Part Approval Process
- Step 7-Prevent Recurrence
  - Lessons Learned
- Step 8-Recognize the teams

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Course Listings: Improvement Tools and Methods

Total Preventive Maintenance (TPvM)
Improve the performance of your manufacturing operations through increased uptime and productivity. Learn how to develop and implement a Total Preventive Maintenance program that can significantly improve your bottom line.

Who should attend:
Individuals involved with analysis of process data underlying quality and productivity improvement.

Prerequisite: None

CEU Credits: 1.6

Duration: 16 Hours (2-day course)

Course Content:

- Introduction to Total Preventive Maintenance
  - Overview of TPvM
  - How does TPvM Work?
  - Benefits of TPvM
    - Maximizing Output Rate, Quality, Customer Satisfaction
    - Minimizing Total Cost, Inventory, Unscheduled Downtime
- TPvM and QS-9000
  - The role of TPvM in QS-9000
  - Continuous Improvement and TPvM
- TPvM Concepts
  - Measuring Equipment Effectiveness
  - Eliminating Equipment Losses
  - Autonomous Maintenance
  - Preventive Maintenance
  - Planned Maintenance Activities
  - Predictive Maintenance Activities
  - Equipment Replacement Parts
- Organizing for TPvM
  - Creating the Organizational Structure
  - Top Management Responses
    - Management Responses
    - Maintenance Responses
    - Operator Responses
  - Developing the Leverage for Change
  - The TPvM Work Group
  - The Role of Education and Training
- Implementing TPvM
  - Planning the TPvM Project
  - Preparation for Implementation
  - Implementing TPvM
  - Improving the TPvM Program

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ISO 9001:2000 Internal Auditing
This two-day seminar is based on the revised ISO 9001:2000 Quality Management System standard. It is designed to provide professionals, managers, ISO 9001 development project team members and others involved in the evaluation, development or maintenance of an ISO 9001:2000 quality management system with the knowledge needed to develop and effectively implement an ISO 9001:2000 quality management system. Each seminar topic contains a presentation and discussion of the topic material along with exercises or activities designed to strengthen the understanding of the topic's key concepts and their application.

Who should attend:
Anyone interested in learning about the ISO 9000:2000 quality system and all employees responsible for contributing to the development, implementation or maintenance of an ISO 9000:2000 quality system.

Prerequisites:
A general understanding of the quality standard is required (ISO 9001:2000 Overview).

CEU Credits: 1.6

Duration: 16 Hours (2-day course)

Course Content:

- Review of the Standard
  - What is ISO 9001:2000?
  - The Eight Quality Management System Principles
- Quality System Documentation
  - Scope
  - The Quality Manual
  - Procedures
  - Work Instructions
  - Quality Records
- Introduction to Quality System Auditing
  - What is Quality?
  - What is a Quality Management System?
  - What is an Audit?
  - Why Audit?
  - How to Audit For Effectiveness
- How to Audit a Process-Based Quality System
  - The Process Model
  - What is a Process?
  - Defining a Process
  - Customer Oriented Processes
  - Requirements For Processes
  - Understanding Process Interrelationships
  - Process Maps and What to Look For
  - Process Controls
  - Process Auditing Techniques

Improvement Tools and Methods
- Advanced Product Quality Planning (APQP)
- Design Failure Mode & Effects Analysis (DFMEA)
- Diagnostic Troubleshooting
- Geometric Dimensioning and Tolerancing (GD&T)
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Quality Systems
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- ISO/TS 16949 Internal Auditing
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- Understanding ISO/TS 16949:2002
- ISO 14001 EMS
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Six Sigma
- Leadership Training
- Champion Training
- Black Belt Training
- Green Belt Training

Lean
- 5S Workplace Optimization
- Lean Operations Overview
- Value Stream Mapping
- Visual Management

ISO 9001:2000 Internal Auditing — Continued

Course Content:

- Effective Audit Planning
  - Defining the Audit Scope and Objectives
  - Selecting The Audit Team
  - Conducting The Document Review
  - Preparing an Audit Plan
  - Identifying and Gathering Information
  - Developing Audit Work Documents
- How to Conduct the Audit
  - The Opening and Closing Meetings
  - Effectively Communicating During the Audit
  - Collecting and Verifying Information
  - Interview Techniques
  - Identifying and Documenting Audit Nonconformances
  - Preparing Corrective Action Requests
- Audit Reporting and Corrective Action Verification
  - Writing an Audit Report
  - Verification of Corrective Actions
- Managing an Audit Program
  - Developing an Audit Schedule
  - Audit Files and Records
  - Auditor Characteristics, Requirements and Responsibilities

Each participant will receive a comprehensive manual and a Certificate of completion at the close of the seminar.

Improvement Tools and Methods
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Course Listings: Quality Systems

ISO/TS 16949:2002 Internal Quality Auditing
This activity-based seminar is based on the ISO/TS 16949:2002 Automotive Quality Management System standard. It is designed to provide professionals, managers, ISO/TS 16949 development project team members and others involved in the evaluation, development or maintenance of an ISO/TS 16949 quality management system with the knowledge needed to develop and effectively implement an ISO/TS 16949 quality management system. Each seminar topic contains a presentation and discussion of the topic material along with exercises or activities designed to strengthen the understanding of the topic's key concepts and their application.

Who should attend:
Anyone interested in learning about the ISO/TS 16949 quality system and all employees responsible for contributing to the development, implementation or maintenance of an ISO/TS 16949 quality system.

Prerequisites:
A general understanding of the quality standard is required (ISO/TS 16949:2002 Overview).

CEU Credits: 3.2

Duration: 32 Hours (4-day course)

Course Content:

- Review of the Standard
  - What is ISO/TS 16949:2002?
  - The Eight Quality Management System Principles
- Quality System Documentation
  - Scope
  - The Quality Manual
  - Procedures
  - Work Instructions
  - Quality Records
- Introduction to Quality System Auditing
  - What is Quality?
  - What is a Quality Management System?
  - What is an Audit?
  - Why Audit?
  - How to Audit For Effectiveness
- How to Audit a Process-Based Quality System
  - The Process Model
  - What is a Process?
  - Defining a Process
  - Customer Oriented Processes
  - Requirements For Processes
  - Understanding Process Interrelationships
  - Process Maps and What to Look For
  - Process Controls
  - Process Auditing Techniques

Improvement Tools and Methods
- Advanced Product Quality Planning (APQP)
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ISO/TS 16949:2002 Internal Quality Auditing — Continued

Course Content:

- Effective Audit Planning
  - Defining the Audit Scope and Objectives
  - Selecting The Audit Team
  - Conducting The Document Review
  - Preparing an Audit Plan
  - Identifying and Gathering Information
  - Developing Audit Work Documents
- How to Conduct the Audit
  - The Opening and Closing Meetings
  - Effectively Communicating During the Audit
  - Collecting and Verifying Information
  - Interview Techniques
  - Identifying and Documenting Audit Nonconformances
  - Preparing Corrective Action Requests
- Audit Reporting and Corrective Action Verification
  - Writing an Audit Report
  - Verification of Corrective Actions
- Managing an Audit Program
  - Developing an Audit Schedule
  - Audit Files and Records
  - Auditor Characteristics, Requirements and Responsibilities

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Improvement Tools and Methods
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Course Listings: Quality Systems

Understanding ISO 9001:2000
This two-day seminar is based on the revised ISO 9001:2000 Quality Management System standard. It is designed to provide professionals, managers, ISO 9001 development project team members and others involved in the evaluation, development or maintenance of an ISO 9001:2000 quality management system with the knowledge needed to develop and effectively implement an ISO 9001:2000 quality management system. Each seminar topic contains a presentation and discussion of the topic material along with exercises or activities designed to strengthen the understanding of the topic's key concepts and their application.

Who should attend:
Anyone interested in learning about the ISO 9000:2000 quality system and all employees responsible for contributing to the development, implementation or maintenance of an ISO 9000:2000 quality system.

Prerequisite: None

CEU Credits: 1.6

Duration: 16 Hours (2-day course)

Course Content:

- Overview of ISO 9001:2000:
  - What is ISO 9001:2000?
  - The Process Approach Model
  - The Structure of the Standard
  - The Eight Quality Management Principles
  - Reductions in Scope
- The Quality System Requirements:
  - The ISO/TS 16949 Quality System
  - Management Responsibility
  - Resource Management
  - Product Realization
  - Measurement, Analysis and Improvement
- Implementing an ISO 9001:2000 Quality System:
  - A Structured Approached to Planning and Implementation
  - Registration Issues
- Workshops:
  - Understanding and Analyzing a Process
  - Key Process Identification and Mapping
  - Identifying Required Procedures and Records
  - Developing an Effective Quality Policy & Supporting Objectives
  - Recognizing Audit Findings and Their Relationship to the Requirements
  - Various Team Exercises & Discussions

Each participant will receive a comprehensive manual and a Certificate of Completion at the close of the seminar.

Improvement Tools and Methods
- Advanced Product Quality Planning (APQP)
- Design Failure Mode & Effects Analysis (DFMEA)
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Quality Systems
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Course Listings: Quality Systems

Understanding ISO/TS 16949:2002

This two-day seminar is designed to provide suppliers to the automotive sector with an understanding of the ISO/TS 16949:2002 requirements and the new process approach required by the standard. This training identifies the changes between QS-9000, ISO/TS 16949:1999 and ISO/TS 16949:2002 and provides an overview of transition and registration issues. Exercises, teamwork and lectures prepare participants to effectively develop and implement a new quality system or transition their current QS-9000 or ISO/TS 16949:1999 based quality system to one compliant to the ISO/TS 16949:2002 requirements.

Who should attend:

Anyone interested in learning about the ISO/TS 16949 Quality System and all employees responsible for contributing to the development, implementation or maintenance of an ISO/TS 16949 Quality System.

Prerequisite: None

CEU Credits: 1.6

Duration: 16 Hours (2-day course)

Course Content:

- Introduction:
  - What is ISO/TS 16949:2002?
  - Why ISO/TS 16949?
  - Scope and Applicability
  - A Value-Adding Implementation Strategy
- The ISO 9001:2000 Foundation:
  - The ISO 9000 Series of Standards
  - The Process Approach Model
  - The Structure of the Standard
  - The Eight Quality Management Principles
  - Reductions in Scope
- The Quality System Requirements:
  - The ISO/TS 16949 Quality System
  - Management Responsibility
  - Resource Management
  - Product Realization
  - Measurement, Analysis and Improvement
- Implementation/Transition and Registration Issues
  - Sanctioned Interpretations & Customer-Specific Requirements
  - Implementation / Transition Planning
  - Registration Issues
- Workshops:
  - Understanding and Analyzing a Process
  - Key Process Identification and Mapping
  - Developing an Effective Quality Policy & Supporting Objectives

Each participant will receive a comprehensive manual and a Certificate of Completion at the close of the seminar.

Improvement Tools and Methods
- Advanced Product Quality Planning (APQP)
- Design Failure Mode & Effects Analysis (DFMEA)
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Quality Systems
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Course Listings: Quality Systems

ISO 14001 EMS

A powerful activity-based seminar that examines ISO 14001 and the issues surrounding environmental management in the manufacturing sector, and explains how to integrate it with an existing ISO 9000 or ISO/TS 16949-based quality management system.

Who should attend:
Anyone interested in learning about the ISO 14001 EMS and all employees responsible for contributing to the development, implementation or maintenance of an ISO 14001 EMS.

Prerequisite:
A general familiarity with the ISO/QS-9000 Quality System standard is recommended. A detailed overview of the ISO 14001 standard is included in the seminar.

CEU Credits: 1.6

Duration: 16 Hours (2-day course)

Course Content:

- Environmental Management in the Automotive Industry
  - Key Issues in Environmental Management
  - Automotive Sector Issues and Initiatives
  - Environmental Management Systems
- The ISO Series of Standards Management System Overview
  - Benefits of an Integrated System
  - Overview of the Quality Management System
  - Overview of the ISO 14001 EMS
  - Key Terms and Definitions
- Detailed Review of ISO 14001 and Opportunities for Integration with the ISO/QS-9000 Elements
  - 4.1 General Requirements
  - 4.2 Environmental Policy
  - 4.3 Planning
  - 4.4 Implementation and Operations
  - 4.5 Checking and Corrective Action
  - 4.6 Management Review
- Developing an Implementation Plan
  - Getting Started
  - Determining the Baseline
  - Developing the Plan
  - System Development
  - System Implementation
  - Verifying the System
  - System Certification
- Integrated Policy Manual

Each participant will receive a comprehensive manual and a Certificate of Completion at the close of the seminar.

Improvement Tools and Methods
- Advanced Product Quality Planning (APQP)
- Design Failure Mode & Effects Analysis (DFMEA)
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- Geometric Dimensioning and Tolerancing (GD&T)
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Quality Systems
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Course Listings: Quality Systems

Malcolm Baldrige National Quality Award

The Baldrige award continues to be presented annually to companies in recognition of business excellence and quality achievement. This seminar highlights the seven key criteria areas used to evaluate applicants and offers pointers on preparing the application. Participants also learn how to gain extensive knowledge and understanding of their entire management system, its current condition, what areas most need improvement and how to begin making those improvements. All leaders and managers can benefit from this systems perspective.

Improvement Tools and Methods
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Quality Systems
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Course Listings: Statistical Methods

Applied Statistics for Process Improvement
Statistical analysis is a key to understanding processes and driving process improvement. This course allows participants to understand and use statistical tools utilized by process improvement experts to drive enhancements in quality and productivity. Microsoft ExcelTM is used extensively to aid participants in improving the speed and efficiency of their analyses. Industrial process case studies and examples are used extensively throughout the course.

Who should attend:
Individuals involved with analysis of process data underlying quality and productivity improvement.

Prerequisite:
A knowledge of basic algebra and Microsoft Excel is highly recommended. Computer analysis using Microsoft Excel will be emphasized.

CEU Credits: 3.2

Duration: 32 Hours (4-day course)

Course Content:

- Understanding a Single Process
  - Estimating the Center and Spread
  - Confidence Intervals for the Mean, Variance and Proportion
  - Testing a Hypothesized Mean, Variance and Proportion
  - Errors of Type I and II
  - Sample Size Considerations
  - Assessing Differences Between Two Gauging Points
- Assessing Differences Between Two Parallel Processes
  - Graphical Techniques
  - Differences in Means
    - Student's t Test
  - Differences in Variation
    - F Test
  - Differences in Proportion
- Assessing Differences Among More Than Two Parallel Processes
  - Differences Between Means
    - Analysis of Variance
  - Differences in Variation
  - Differences in Proportion
- Relating Two Variables (Using an Input Variable to Predict an Output Variable)
  - Correlation
  - Fitting a Line
  - Residual Analysis
  - Predicting the Output at a Given Level of the Input
  - Confidence and Prediction Intervals
- Relating More Than Two Variables (Using More Than One Input Variable to Predict an Output Variable)
  - Building the Regression Model
  - Residual Analysis
  - Confidence and Prediction Intervals for Regression Models

Each participant will receive a comprehensive manual and a Certificate of Completion at the close of the seminar.

Improvement Tools and Methods
- Advanced Product Quality Planning (APQP)
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Statistical Methods
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Course Listings: Statistical Methods

Design of Experiments (DOE I)
Design experiments are an extremely powerful tool used to optimize processes. Learn how to utilize sequential experimentation to make your processes as efficient as they can be. Experimental selection, design, conduct and analysis are covered and reinforced through an actual DOE workshop.

Who should attend:
Individuals who wish to identify and manage important process variables as well as their effect on quality and productivity improvement.

Prerequisite:
Knowledge of basic algebra is highly recommended. A familiarity with SPC concepts (SPC I) will prove helpful.

CEU Credit: 3.2

Duration: 32 Hours (4-day course)

Course Content:

- Experimental Design Concepts
  - DOE and the Continuous Improvement Strategy
  - Anatomy of an Experiment
  - Principles of Conduct
- Two-Level Full Factorial Experiments
  - Two-Level Factorial Designs
  - Conduct of the Experiment
  - Analysis of Two-Level Factorial Experiments
  - Catalog of Factorial Designs
  - Using the Design and Analysis Worksheets
- Getting Started with Experimental Design
  - The DOE Process
  - Clarifying the Problem
  - Choosing the Factors and Levels
  - Anticipating the Analysis
  - Preparing for Communication of results
- Judging the Importance of Effects
  - Location Effects
    - Sample Size Determination
  - Variance Effects
    - Sample Size Determination
  - Proportion Effects
    - Sample Size Determination
- Model Development
  - Model Building
  - Model Checking

Improvement Tools and Methods
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Course Listings: Statistical Methods

Design of Experiments (DOE I) — Continued

Course Content:

- Two-Level Fractional Factorial Designs
  - Fractional Factorial Experiments
  - Confounding of Effects
  - Resolution of Designs
  - Analyzing Fractional Factorial Experiments
  - Catalog of Designs
- Screening Designs
  - Plackett-Burman Designs
  - Taguchi Designs
  - Combining Fractional Experiments of Improve Resolution
- Group Experiment Project
  - Choosing Factors
  - Setting Up Levels
  - Choosing the Design
  - Analysis and “Optimization”

Each participant will receive a comprehensive manual and a Certificate of Completion at the close of the seminar.

Improvement Tools and Methods
- Advanced Product Quality Planning (APQP)
- Design Failure Mode & Effects Analysis (DFMEA)
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Course Listings: Statistical Methods

Design of Experiments (DOE II)
Enhance your knowledge of DOE and expand your ability to apply it with the advanced set of tools provided in this course. Advanced tools and methods such as mirror image designs, ANOVA, blocking, mixtures designs, evolutionary operation and response surface methodology are covered. A DOE workshop is used to reinforce the key concepts.

Who should attend:
Individuals who wish to identify and manage important process variables as well as their effect on quality and productivity improvement.

Prerequisite:
A practical understanding of elementary applied statistics and a basic background in DOE are important. This seminar will build upon topics presented in the seminar, Design of Experiments I.

CEU Credit: 3.2

Duration: 32 Hours (4-day course)

Course Content:

- Introduction
  - Fundamental Concepts
- Planning the Experiment
  - The Process of Planning an Experiment
  - DOE Planning Worksheet
- Screening Important Factors
  - Review of Fractional Factorial Designs
  - Choosing Resolution
  - Defining Alias Structure
- Analyzing Unreplicated Designs
  - Graphical Methods
  - Estimating Standard Error of Effects
  - Calculating a Pseudo-Standard Error
- Knowledge-Building Through Sequential Experimentation
  - Options for Follow-up to the Screening Experiment
  - Mirror Image Designs
  - Assembly of Screening and Follow-up Designs
- Model Building
  - Mathematical Models for Process Optimizing
  - Checking Model Validity
- Using ANOVA to Determine Important Factors
  - Analysis of Two-Level Designs
  - Analysis of Multi-Level Designs
  - Introduction to Multiple Comparisons

Improvement Tools and Methods
- Advanced Product Quality Planning (APQP)
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Course Listings: Statistical Methods

Design of Experiments (DOE II) — Continued

- Designing Experiments When Randomization is Restricted
  - When to use Blocking
  - Standard Blocking Designs
  - Split-Plot Designs
  - Relationships to Taguchi Designs with “Noise Factors”
- Experimenting with Nested Factors
  - Recognizing Situations with Nested Design
  - Analyzing the Nested Design
- Handling Messy Data
  - Recognizing Messy Data
  - Avoiding Messy Data
  - Analyzing Experiments with Missing Responses
- Evolutionary Operation
  - In-Process Optimization
- Optimizing a Process with Experimental Design
  - Using the Path of Steepest Ascent Approach
  - Response Surface Designs Including Central Composite
  - Group Simulation Exercise

Each participant will receive a comprehensive manual and a Certificate of Completion at the close of the seminar.

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Course Listings: Statistical Methods

Measurement System Assessment I (Gage R & R)
Measurement systems are a critical component of any continuous improvement program. Without accurate and precise data, it is difficult or impossible to efficiently drive quality and productivity improvements. To ensure accurate and precise measurements are being used to drive continuous improvement, measurement system assessment is key. This workshop-based seminar provides participants with the knowledge necessary to conduct basic studies including a gage R&R, a bias study, a linearity study and attribute measurement system assessments.

Who should attend:
Practitioners involved in the evaluation of measurement systems and any individual making decisions based on data.

Prerequisite:
A knowledge of basic algebra and statistical process control concepts (SPC I) is highly recommended

CEU Credits: 1.6

Duration: 16 Hours (2-day course)

Course Content:

- Concepts of Measurement System Assessment
  - Measurement System Characterization
  - Accuracy and Calibration
  - Precision
  - Linearity
  - Stability
  - Components of Variation
- Long-Term Measurement Process Capability Assesssment
  - X and Rm Charts of Short-term Results
  - Xbar and R or Xbar and s Charts on “Control” Specimens
- Process Potential Assessment (Gage R & R)
  - Estimating Repeatability
  - Estimating Reproducibility
  - How to Use Standard Forms (AIAG and Others)
  - Hands-on Workshop
- Analyzing the Variance of Measurement Systems
  - ANOVA
  - Identifying Common Cause Variability Reduction Potential
- Special Case Studies
  - Redundant Systems
  - Fitting a Curve to Time Variant True Values
  - Correlation Studies to Reference Measurement Systems
- Attribute Data Systems
  - Options for Evaluating
  - Comparison to Variable Systems
  - Risk Assessment with Attribute Systems

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Course Listings: Statistical Methods

Measurement System Assessment II (MSA II)
Non-typical measurement systems require more advanced measurement system techniques. This seminar provides participants the knowledge necessary to perform measurement system assessments for destructive testing, nested systems and other advanced or non-standard situations. It also provides enhanced understanding and utility of core measurement assessment tools taught in MSA I.

Who should attend:
Practitioners involved in the evaluation of measurement systems and any individual making decisions based on data.

Prerequisite:
A knowledge of basic algebra, statistical process control concepts (SPC I) and basic measurement system concepts (MSA I) is strongly recommended.

CEU Credits: 1.6

Duration: 16 Hours (2-day course)

Course Content:

- Introduction
  - Measurement System Assessment Overview
- Review of the Gage R & R Study
  - Estimating Repeatability and Reproducibility
  - Using the Standard Forms
- Understanding Components of Variation
  - Analysis of Variance (ANOVA) Approach to Gage R & R
  - Models Involving System/Specimen Interactions
  - Handling Negative Variance Estimates
  - Interpretation Using Confidence Intervals
  - Understanding “Within Part” Variation
- Application of ANOVA to Special Situations
  - More Than Three Measurement Systems
  - No Repeated Measurements by a System
  - When Measurement Systems Cannot Evaluate Every Specimen in the Study (Nesting)
  - Attributing Two or More Factors to Reproducibility
- Destructive Testing
  - Incorporating Surrogate Parts
  - Using Multiple Locations
  - Fitting a Curve to Time Variant Values
- Studies Involving a Reference Measurement System
  - Intra-Class Correlation
  - The Discrimination Ratio
  - Developing Confidence Limits for the True Value
- Modeling the Attribute Gage System

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Course Listings: Statistical Methods

Statistical Process Control I (SPC I)
Statistical process control is the fundamental tool that underlies most process improvement efforts. This four-day seminar introduces the participant to the subject of variation reduction and process focus. It also provides extensive knowledge of core SPC tools including variables and attribute data control charts, process capability and rational sampling. Extensive use of examples and exercises allow participants to actually construct numerous control charts and calculate capabilities from actual process data.

Who should attend:
Individuals who are involved in production or service processes including management, engineering and quality and have an interest in using statistical techniques to monitor and control their processes.

Prerequisite: A knowledge of basic algebra is helpful, but not required

CEU Credits: 3.2

Duration: 32 Hours (4-day course)

Course Content:

- Process Control vs. Product Control
  - Quality and Productivity Relationship
  - SPC Articulation
  - Process Control/Product Control Cycles
- SPC Strategy...Initial Steps
  - Data Acquisition and Presentation
  - Process Considerations
- Process Control Charts (The Concept)
  - Shewhart Control Chart Model
  - Process Behavior Assessment
  - Control Charts Selection
- Process Variation Assessment
  - Common vs. Special Causes
  - Improvement Avenues Through Sources of Variability
  - Completing the SPC Strategy
- Xbar and R Chart Construction
  - Guidelines, Examples and Control Chart Construction
- Data Characterization
  - Populations, Samples, Frequency Distributions and Curves
  - Measures of Central Tendency and Variability
  - Distribution of Sample Averages and Normal Distribution
- Interpretation of Control Charts
  - Concepts of Chart Analysis
  - Specific Rules for Xbar and R Charts
- Sampling Considerations
  - The Rational Sample and Sample Size Considerations
  - Frequency of Sampling and Sampling Pitfalls

Improvement Tools and Methods
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Course Listings: Statistical Methods

Statistical Process Control I (SPC I) — Continued

Course Content:

- Process Capability
  - Control vs. Conformance
  - Probability Statements of Capability and Indices: Cpk and Cp; Ppk and Pp
- Additional Variable Control Charts
  - X and Rm Charts, X and R Charts, X and s Charts
- Attribute Control Charts
  - p, np, c and u Charts
  - Variable Sample Size Considerations
- Closing the Loop
  - Problem Solving Tools
  - Verifying Improvement
  - Capstone Workshop

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Course Listings: Statistical Methods

Statistical Process Control II (SPC II)
This seminar builds on the knowledge gained in SPC I. Participants gain an enhanced understanding of uncertainty, sample size selection and probabilities underlying control chart signals. More sophisticated charting tools permitting charting of data collected at multiple locations, non-normal data and trending data is covered as well as other special use charts such as CUSUM and EWMA charts are covered. Computation of non-normal capability is also covered.

Who should attend:
Individuals who are involved in production or service processes including management, engineering and quality and have an interest in using statistical techniques to monitor and control their processes.

Prerequisite:
This seminar builds upon the topics presented in SPC I. A knowledge of basic algebra, statistical process control concepts (SPC I) are strongly recommended.

CEU Credits: 3.2

Duration: 32 Hours (4-day course)

Course Content:

- Review of the SPC Strategy
  - Process vs. Product Control
  - Concept of Variation
  - Control Chart Concept
  - Rational Sampling
- Statistical Analysis of Control Charts
  - Errors of Type I and II
  - Sensitivity
  - Statistically Determining Sample Size
  - Probability Foundation of Signals
- Collecting Data at Two Locations (e.g., Two Cavity Mold, Two Gauging Points on a Single Unit)
  - Testing for Differences
  - Control Charts for Two Locations
  - Capability Assessment
- Collecting Data from Multiple Locations (e.g., Multiple Cavity Mold, Several Fill Heads, Multiple Gauging Points)
  - Testing for Differences
  - Applicable Control Charts
  - Capability Assessment
- Non-Normal Data
  - The Effect of Assuming Normality
  - Testing for Normality
  - Graphical Methods
  - Goodness of Fit Tests
  - Skewness and Kurtosis
  - Fitting a Curve to Non-Normal Data
  - Appropriate Control Charts
  - Capability Assessment

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Course Listings: Statistical Methods

Statistical Process Control II (SPC II) — Continued

Course Content:

- Natural Trending (e.g., Tool Wear, Chemical Depletion)
  - Control Charts to Describe the Expected Trend
  - Coding Data to Remove the Trend
  - Capability Assessment
- Special Control Charts
  - CUSUM Charts
  - EWMA Charts
- Attribute Data
  - p and u Charts for Varying Sample Size

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Course Listings: Statistical Methods

Short Run SPC
Organizations running small numbers of parts or manufacturing batches are challenged in applying classical SPC tools to their processes. Short run SPC offers these organizations highly effective, specific SPC tools that can be used to provide process understanding and the basis for process improvement in this environment. Strategies such as coding of data, standardized charting and capability assessment for short runs and batches are covered through theory, example and exercises.

Who should attend:
Individuals involved in applying SPC concepts to batch processing or short production runs.

Prerequisite:
Basic knowledge of SPC concepts (SPC I) will provide an excellent background for this special topic seminar.

CEU Credits: 1.6

Duration: 16 Hours (2-day course)

Course Content:

- SPC Strategy for Short Production Runs
  - Process Control vs. Product Control
  - Characterizing Short Production Runs
  - Evaluating Short Production Runs
  - Components of Variation
- Coding Variable Data
  - Forming Families
  - Coding with Respect to Location
  - Coding with Respect to Variation
- Standardized Charting
  - Varying Sample Size Situations
  - Standardizing Location and Variation
- Process Capability Assessment for Short Runs/Batch Processes
  - Probability Assessment
  - Capability Indices (Cpk, Cp, CR, Ppk, Pp, PR)
- Attribute Data
  - Testing for Differences
  - Appropriate Coding of Data
- Statistical Assessment of Limited Data
  - Student's t Statistic
  - Calculating Limits with Few Samples
  - Capability with Limited Data

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Course Listings: Six Sigma

Leadership Training:
Knowledgeable, supportive leadership is essential to any successful quality initiative. This compact, half-day overview of Six Sigma and how it can affect positive change in an organization is a key to successful leadership support. Key focus is on potential benefits of Six Sigma, the potential threats to success, organizational implementation and the role of executive leadership in successfully supporting an organization-wide Six Sigma program. This seminar can be tailored in length to suit the specific needs of a management team.

Champion Training:
A one to two-day seminar that provides these key participants in the organization's Six Sigma program with an overview of organizational implementation, roles and responsibilities, the Six Sigma DMAIC methodology and the role of Champions in selecting and supporting the Six Sigma projects as well as the Six Sigma program. Special emphasis is placed on project selection and support, the key roles of the project Champions.

Black Belt Training:
An intensive 20-day, curriculum for Six Sigma team leaders. The seminar provides a firm understanding of organizational implementation and change as well as detailed knowledge of all phases of the Six Sigma DMAIC process. Tools such as project management, PFMEA, SPC, MSA, DOE Applied Statistics, etc., as well as their appropriate application in the DMAIC process are covered as part of this comprehensive program. To ensure rapid organizational payback on the investment in training, participants are assigned a project by their organization prior to commencing training and work through it to completion during the course of the training. Training is generally spaced over four to six months to enable project completion concurrent with training.

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Course Listings: Six Sigma

Six Sigma Green Belt
The Six Sigma program provides Green Belt candidates with strong training in the Six Sigma methodology along with the core tools and methods used within the methodology to drive cost reductions and improvement in customer satisfaction. Participants receive ten days of intensive, workshop-focused instruction.

Who should attend:
Individuals who wish to utilize Six Sigma Green Belt tools to drive improvements in quality, productivity, cost reductions and customer satisfaction.

Prerequisite: A basic knowledge of algebra

CEU Credits: 8.0

Duration: 80 Hours (10-day course)

Course Content:

Introduction to Six Sigma
This section introduces the Green Belt to the fundamentals of Six Sigma. It creates an understanding of the Six Sigma framework within the organization and the framework of a Six Sigma project.

- Benefits of Six Sigma Programs
- Six Sigma Integrated Model – how Six Sigma drives process improvement
- How to effectively implement Six Sigma in an organization
  - Cultural issues
  - Strategic issues
  - Tools issues
- Six Sigma Project Methodology Overview
  - Define
  - Measure
  - Analyze
  - Improve
  - Control
- Project Selection
  - How to select appropriate projects
  - How to avoid inappropriate projects
- Project Scoping
  - Avoiding scope creep
  - Aligning resources

Define
This section details the initial phase of the Six Sigma methodology.

- Developing a comprehensive Project Charter
  - Problem statement, goal statement, objectives, business case and milestones
  - Base lining the process
- Developing a Process Map
  - Process flow charts
  - Process maps
  - Project Plan

Improvement Tools and Methods
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Six Sigma Green Belt — Continued

Course Content:

Project Management
This section provides the participant with a general overview of project management techniques and tools that increase their effectiveness in leading and managing Six Sigma projects.

- Project management fundamentals
- Creating an effective project plan
- Using Project Management software to increase efficiency

Measure
This topic provides coverage of measurement assessment and data collection. Key concepts include understanding measurement systems as processes. Core tools center on the assessment of measurement system accuracy, precision and linearity.

- Identifying Measurements
  - Input/Output matrices
  - Data collection planning tools and check sheets
- Measurement System Assessment
  - Variables data
    - Gage R&R
    - Bias studies
    - Linearity studies
  - Attribute Data
    - 2x2 matrices
    - Long Method (with underlying measurements)
- Collecting Data – propriety of data collection
- Long-term assessment – control chart concepts for measurement systems

Analyze
This statistically intensive section of the Green Belt training provides the participant with a comprehensive array of tools used to drive to root causes and optimize processes. Participants receive a firm grounding in basic core tools as well as detailed instruction in advanced tools such as designed experiments and applied statistics.

- Core Quality Tools
  - Pareto charts
  - Trend charts
  - Brainstorming and affinity diagrams
  - Prioritization tools
  - Force field analysis
  - Cause and effect diagrams
  - Check sheets

Improvement Tools and Methods
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Six Sigma Green Belt — Continued

Course Content:

Analyze — Continued:

- Statistical Process Control
  - Control chart concepts (process vs. product revisited)
  - Key variation concepts
  - Variables data control charting
    - Advantages of variables data
    - X-bar and R charts
    - X and Rm charts
  - Attribute data charts
    - Shortcomings of attribute data
    - p chart
    - np chart
    - c chart
    - u chart
  - Rational sampling
  - Process capability
    - Use of Z values
  - Capability indices

- Applied Statistics
  - Describing a single process
    - Confidence intervals for mean, spread and proportion
    - One sample t-test
    - Paired data and the paired t-test
    - Testing for normality
      - Plotting techniques
      - Skewness and kurtosis
      - Other normality test
  - Comparing parallel processes
    - 2 sample t-test for means
    - f test for variances
    - z test for proportion
    - ANOVA
  - Relating inputs to outputs
    - Correlation coefficient and the coefficient of determination
    - Regression
      - Simple regression
      - Multiple regression
      - Analysis of residuals
    - Testing for significance
      - Quadrant sum test

- Design of Experiments
  - DOE fundamentals
    - Terms
    - The DOE process
  - Planning an experiment

Improvement Tools and Methods
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- ISO 14001 EMS
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Six Sigma Green Belt — Continued

Course Content:

Improve
This phase of the Six Sigma process is focused on selecting and implementing process improvements to achieve or exceed project goals.

- Selecting improvements
  - Utilization of data
  - Brainstorming
  - Prioritization tools
- Risk assessment
  - Force field analysis
- Key improvement tools
  - Force field analysis
- Mistake proofing overview

Control
Participants receive multiple methodologies to ensure that the project gains remain effective and in place to maximize benefit to the organization.

- Document Control
  - Quality system documents
  - FMEAs
  - Other documents
- Control plans and reaction plans
  - Control Charts

Each participant will receive a comprehensive manual and a Certificate of Completion at the close of the seminar.

Improvement Tools and Methods
- Advanced Product Quality Planning (APQP)
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5S Workplace Optimization

5S Housekeeping is the most basic and fundamental approach to improving workplace performance in all types of business. Based on Japanese words that begin with 'S', the 5S philosophy focuses on workplace organization and standardized work procedures. 5S simplifies the work environment, reduces waste and non-value activity while improving effectiveness, efficiency, morale, and safety. 5S is simple, easily understood, and involves everyone in promoting continuous improvement throughout an organization. While creating positive impressions on customers, a business will become more profitable and competitive in the marketplace.

Who should attend:
All employees or teams responsible for the condition of the workplace.

Prerequisite: None

CEU Credits: 0.8

Duration: 8 Hours (1-day course)

Course Content:

- 5S Housekeeping Introduction
  - Past Improvement Thinking
  - Benefits Lean Thinking
  - Value-Added versus Non-Value Added Work Activities
  - Definitions of Waste
  - Visualization in the Workplace
  - Visual Management
  - Meaning, Purpose, and Benefits of the 5S's
- Sort
  - Identifying "What is Unnecessary"
  - Deciding, "What is Not Needed?"
- Set in Order
  - Creating a Functional Layout
  - Office Inputs and Outputs
  - Deciding "Where to Put What?
- Shine
  - Making Things New
  - Deciding, "What Needs to be Cleaned, Painted, Repaired, and/or Replaced?"
- Standardize
  - Standardization
  - Visual Management
  - Deciding "What Needs Visual Control?"
- Sustain
  - Habit Formation and Discipline
  - Personal Responsibility
  - Deciding "What Needs to be Done to Maintain Workplace Organization?"
- Implementing 5S Housekeeping in Your Organization
  - Creating a Workplace "Zone Map" and Selecting "Zone Captains"
  - The 5S Housekeeping "Kickoff" Meeting
  - On-Going Management and Leadership Support

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Course Listings: Lean

Lean Operations Overview
A high-impact, activity-based seminar that provides a detailed overview of the principles of lean operations and their universal applicability. Learn how to identify waste in your processes and begin the lean journey. The course covers each of the essential lean tools and show how they integrate together to drive cost reduction and process improvement.

Who should attend:
All employees interested in how to utilize lean operating systems to eliminate waste and improve profitability.

Prerequisite:
A general familiarity with continuous improvement and problem solving will prove helpful.

CEU Credits: 1.6

Duration: 16 Hours (2-day course)

Course Content:

- Manufacturing Process Simulation
  - Fosters Enhanced Understanding of:
    - Stability
    - Continuous Flow
    - Synchronous Production
    - Pull System
    - Level Production
    - Customer Demand

- Learn the Importance of Value Stream Mapping
  - Introduction to Value-Added
  - The Nature of Waste
  - How to Identify Waste

- Become Familiar with Lean Manufacturing Concepts
  - Visual Factory and 5S
  - Standardized Work
  - Mistake Proofing
  - Quick Change Over
  - Kanban
  - Total Productive Maintenance

- Understand the Powerful Impact Lean Has on the Financial Health of Your Company

- Gain a Deeper Understanding of Proven Techniques for Your Particular Application

- The Benefits of Lean

- How Lean Concepts Interact and Interrelate to Each Other

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Value Stream Mapping
Value Stream Mapping is a powerful visualization tool designed to help map the entire door-to-door production flow. This course offers the opportunity to learn "to see the flow" of information and materials throughout the value stream of a business. By analyzing the complete process the "current state map" can be used to prioritize improvement projects that bring real benefits to process flow.

Who should attend:
All employees responsible for quality and productivity improvements and employees that participate in process improvement efforts.

Prerequisites: None

CEU Credits: 0.8

Duration: 8 Hours (1-day course)

Course Content:

- Process Improvement Overview
  - Past Improvement Thinking
  - Origin of Lean Thinking
- What is Lean Thinking?
  - Benefits Lean Thinking
  - Value-Added versus Non-Value Added Work Activities
  - Definitions of Waste
  - Identifying Waste in Processes
- Value Stream Mapping: A Planning Tool
  - The Need for a Value Stream
  - Design Principles of a Lean Value Stream
  - How the Mapping Tool is Used
- Exercise 1: Draw the Current State Map
  - Define Value
  - Identify Waste
- Exercise 2: Determine the Lean Value Stream
  - Map Material and Information Flow
  - Take Time Calculation
- Exercise 3: Draw the Future State Mapping Exercise
  - Introduction to Flow Techniques
  - Concepts of Pull Systems
- Implementing Lean in Your Organization
  - Developing an Improvement Strategy
- Developing the Future State Action Plan

Each participant will receive a comprehensive manual and a Certificate of Completion at the close of the seminar.

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Visual Management
Visual management is a key tool for engendering and enhancing organizational support for continuous improvement activities. This one-day seminar provides the awareness tools and strategy for implementing facility-wide Visual Management Systems. Through lecture and examples, the seminar demonstrates the strategy and methodology of effective visual management in the workplace.