ASQ- Green Belt - 4 Days

INTRODUCTION

The American Society for Quality (ASQ) is the world's leading authority on quality. With more than 100,000 individual and organizational members, this professional association advances learning, improves quality and exchanges knowledge to improve business results and to create better workplaces and communities worldwide.

Certification from ASQ is considered a mark of quality excellence in many industries. It helps you advance your career and boosts your organization's bottom line through your mastery of quality skills. Becoming certified as a Six Sigma Green Belt confirms your commitment to quality and will have the positive impact on your organization.

PROGRAM OVERVIEW

The ASQ Six Sigma Green Belt Program gives participants the skills and knowledge they need for the exceptional leadership of business improvement projects. Upon completing each segment of training, participants immediately apply concepts and tools taught in training to their real-time improvement projects.

Six sigma is a highly disciplined approach used to reduce the process variations to the extent that the level of defects are drastically reduced to less than 3.4 per million opportunities (DPMO). Six sigma is a powerful approach to achieve breakthrough improvements in manufacturing, engineering and Service processes. **Over the past 20 years, use of Six Sigma, the popular business improvement methodology, has saved Fortune 500 companies an estimated $427 billion**

PROGRAM CONTENTS

DAY – 1 & 2 :

OVERVIEW-SIX SIGMA

Six Sigma Overview

✡ Six Sigma and organisational goal
✡ Lean principles
✡ Design for Six Sigma (DFSS)

DEFINE PHASE

Define Opportunity – What is important?

✡ Process Management for projectss
✡ Project management basics
✡ Management and planning tools
✡ Business results and projects
✡ Team dynamics and performance

MEASURE PHASE

Measure Performance – How are we doing?

✡ Process analysis and documentation
✡ Probability and statistics
✡ Collecting and summarising data
✡ Probability distribution
✡ Measurement system analysis
✡ Process capability and performance

DAY- 3 & 4 :

ANALYSE PHASE

Analyze Opportunity – What is wrong?

✡ Exploratory data analysis
✡ Hypothesis testing
✡ Chi square test
✡ ANOVA
✡ Regression Analysis

IMPROVE PHASE

Improve Performance – What needs to be done?

✡ Introduction to DOE
✡ Full factorial design
✡ Solution implementation

CONTROL PHASE

Control Performance – How do we guarantee performance ?

✡ Statistical Process Control (SPC)
✡ Integrate processes.
✡ Control Strategy
✡ Close project

ASQ- Black Belt - 8 Days

INTRODUCTION

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PROGRAM CONTENTS
Week- 1 : Four Days
ENTERPRISEWIDE DEPLOYMENT

Enterprise wide view
Leadership

ORGANISATIONAL PROCESS MANAGEMENT

Impact on stakeholders
Critical to X (CTX) requirements
Benchmarking
Business performance measures
Financial measures

TEAM MANAGEMENT

Team formation
Team facilitation
Team dynamics
Team management
Team decision making tools
Management and planning tools
Team performance evaluation and rewards

DEFINE PHASE
✿ Voice of Customer
✿ Project charter
✿ Project tracking

Week- 2 : Four Days
MEASURE PHASE
✿ Process Characteristics
✿ Data collection
✿ Measurement systems
✿ Basic statistics
✿ Probability
✿ Process capability

ANALYZE PHASE
✿ Measuring and modelling relationships between variables
✿ Hypothesis testing (Chi-sq, ANOVA)
✿ FMEA
✿ Additional analysis methods

IMPROVE PHASE
✿ Design of Experiment (DOE)
✿ waste elimination
✿ Cycle time reduction
✿ Kaizen
✿ Theory of Constraint
✿ Implementation
✿ Risk analysis & mitigation

CONTROL PHASE
✿ Statistical Process Control (SPC)
✿ Other control tools (TPM,5S…)
✿ Maintain control
✿ Control plan

DFSS
✿ Common DFSS Methodology
✿ Design for X (DFX)
✿ Robust design and process
✿ Special design tools

Lean Expert - 4 Days

INTRODUCTION.

Lean focuses on three things- Elimination of Waste and Non Value Added activities, brings process speed and establish the flow. It evaluates the entire operation of the factory and restructures the manufacturing/ service method in order to reduce wasteful activities like waiting, transportation, material hand-offs, inventory, over-production, etc. It co-locates the processes in sequential order. As such, it reduces variation associated with manufacturing routings, material handling, storage, lack of communication, batch production etc. Lean methodology focuses on product flow and on the operator. How can we produce the product in the least amount of time, and how do we standardize the operator methods and give the operator what he/she needs?
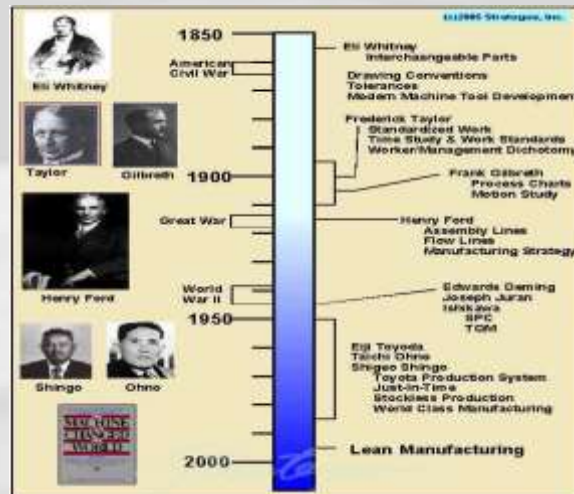
COURSE DURATION

4 days

WHO SHOULD ATTEND

Managers, change agents, Lean Six Sigma practitioners or others that desire an understanding of Lean principles

COURSE INCLUDES

➢ Training Handouts
➢ Training Completion Certificate
➢ Certified Lean Expert Certificate on successful completion of training , test & one Lean project
➢ Project coaching

WHAT YOU WILL LEARN

➢ How to apply Lean methods to improve response to customers' requirements in timelines, quality and cost needs
➢ How workflow fits into the roadmap to deploy Lean in an organization.
➢ How Lean and Six Sigma complement each other.
➢ How waste, value-added and non value-added activities affect process efficiency.
➢ How to construct a Value Stream Map to identify areas for improvement.
➢ How to determine Lean opportunities vs. Six Sigma opportunities.
➢ How to balance workload among employees
➢ How to standardise processes and systems

PROGRAM CONTENTS

✡ Lean evolution
✡ Toyota Production System
✡ Lean overview
✡ Integration of Lean into Six Sigma
✡ Baseline assessment
✡ Product and service family
✡ Voice of the customer analysis
✡ Supply Chain Mapping
✡ Value stream Mapping
✡ Product flow analysis
✡ Operators activity analysis
✡ Set up time reduction/ SMED
✡ Standardisation
✡ Pull system/ KANBAN
✡ Mistake proofing/Poka yoke
✡ Cell design and implementation
✡ Cell performance measurement
✡ Continual improvement
✡ Case studies and Simulations

Black Belt (DFSS) - 5 Days

INTRODUCTION.

Companies that excel at designing more effective ways of accomplishing basic business tasks are best poised to excel in today's competitive business environment.

Design for Six Sigma's DMADOV (Define-Measure-Analyze-Design-Optimise-Verify) methodology is a powerful tool for improving innovation and design. This program helps Six Sigma practitioners apply DFSS concepts so that they can foresee and eliminate defects before and during the design process.

This five-day program is designed to help participants master a variety of techniques for the design process. DFSS is built around the idea that "design" is truly a cross-functional undertaking. No longer is it the sole responsibility of the "Product Designer". While the course focuses on statistical design tools, it also emphasizes project management and includes an in-depth discussion of topics such as listening to and understanding the customer, Converting customer requirement to process specifications and defect free design right at the first time .

COURSE DURATION

5 days

WHO SHOULD ATTEND

Six Sigma Green Belt/ Black Belt who has completed at least one project

COURSE INCLUDES

➤ Training Handouts
➤ Training Completion Certificate
➤ Certified Black Belt (DFSS) Certificate on successful completion of training & test

WHAT YOU WILL LEARN

➤ How to design new products using the DMADOV methodology.
➤ When to use DMADOV over Six Sigma's DMAIC process.
➤ Practical applications of DFSS tools.
➤ Robust Design of Experiments (DOE) techniques.
➤ Product tolerance analysis including the Monte Carlo Simulation.
➤ How to properly analyze reliability data.
➤ How to apply the principles of Design for Manufacturing & Assembly (DFMA).
➤ How to select appropriate maintenance strategies for products.

PROGRAM CONTENTS

DEFINE PHASE

✿ Identify product/process performance
✿ Project charter & CTQs
✿ Set quality goals
✿ Quality function Deployment (QFD)- House of Quality- 1
✿ Kano analysis
✿ Survey design

MEASURE PHASE

✿ CTQ flow down and transfer Function structure
✿ Measurement system analysis
✿ Capability study

ANALYZE PHASE

✿ Develop conceptual designs
✿ Innovation and creativity
✿ Six thinking hats
✿ TRIZS/ TIPS
✿ Design for reliability
✿ DFSS Score card
✿ Risk assessment
✿ Design FMEA
✿ Pugh matrix
✿ QFD- House of quality- 2

DESIGN PHASE

✿ Build system and sub-system models
✿ Generate transfer function
✿ Statistical analysis and variance drivers Design of experiment
✿ Axiomatic design
✿ Function audit
✿ Process capability flow up for all subsystem

OPTIMISE PHASE

✿ Optimise design
✿ Statistical tolerancing
✿ Modeling and sensitivity
✿ Taguchi robust design
✿ Error proofing
✿ QFD- House of quality- 3 & 4

VARIFY PHASE

✿ Product/process design varification
✿ Develop manufacturing & suppliers control plans
✿ Document and transition

Master Black Belt - Course Overview

INTRODUCTION.

A master black belt is very highly proficient in the six sigma tools and can train others in the methodology. Number of master black belts may be very few in the organisation.

Our Master Black Belt program is designed to help Black Belts transition into the Master Black Belt role by providing them with all the tools they need to be successful teachers, coaches, project leaders and Champions. These courses help practitioners build a mix of both hard and soft skills.

COURSE DURATION

20 days Spread across 4 months

WHO SHOULD ATTEND

Six Sigma Black Belt who has completed at least one project

COURSE INCLUDES

➢ Training Handouts
➢ Training Completion Certificate
➢ Certified Master Black Belt Certificate on successful completion of MBB Criteria

WHAT YOU WILL LEARN

➢ How to manage the change
➢ How to create infrastructure for Lean Six Sigma initiatives
➢ How to select business critical projects
➢ How to conduct GB/BB training
➢ How to guide and coach the projects
➢ How to integrate Lean Six Sigma with other existing best practices
➢ How to institutionalise change management

MBB CERTIFICATION CRITERIA

➢ Complete 4 weeks of MBB training
➢ Co-teach one complete GB/BB program with LSMI MBB
➢ Coach and mentor 2 BB projects
➢ Complete one MBB project

PROGRAM CONTENTS

Week- 1 :
✿ MBB Introduction
✿ MBB Program review
✿ Presentation skills
✿ Message maps
✿ T-MAP
✿ SIPOC
✿ P-MAP
✿ FMEA
✿ Variation and statistics
✿ Distribution and transformation
✿ MSE-Variable
✿ MSE- Attribute
✿ Effective team
✿ Change leadership

Week-2 :
✿ Sampling & CLT
✿ MBB-Capability study
✿ Parametric hypothesis testing
✿ Non parametric hypothesis testing
✿ Turkey test
✿ MBB-ANOVA
✿ MBB-Regression

Week- 3 :
✿ DOE – Full factorial
✿ DOE-Fractional factorial
✿ DOE- Aliasing
✿ DOE- Blocking
✿ DOE- Centre point
✿ DOE- Response surface design
✿ DOE- Mixture design
✿ DOE- Axiomatic design
✿ DOE- Orthogonal array designs
✿ DOE- Taguchich designs
✿ Other optimisation techniques

Week-4 :
✿ MBB- Lean Manufacturing
✿ MBB-Lean services
✿ Creativity tools
✿ Six thinking hats
✿ Lateral thinking
✿ TRIZ
✿ Innovation
✿ MBB- DFSS
✿ MBB-Six Sigma deployment workshop
✿ MBB- Institutionalisation of six sigma
✿ MBB- Practice sessions on teaching, project coaching

Program Details

Statistical Process Control - 3 Days

INTRODUCTION.

Statistical methods are effective tools for improving the process and reducing the defects. People often try to reduce defects by tracing directly back to the cause of the defect. This is a straight forward approach and , at a glance, it seems to be efficient. But, in most cases , causes the causes obtained from that approach are not true ones. Attempts bacome abortive and the effort wasted

Statistical tools lend objectivity accuracy to observations. The maxims of statistical way of thinking are :

1. Give greater importance to facts than abstract concepts
2. Do not express facts in terms of senses or ideas . Use figures derived from specific observational results
3. Provides you adequate informations to take correct decisions

This three days training program aims to illustrate the application of statistical methods to real world problems with case studies

COURSE DURATION

3 days

WHO SHOULD ATTEND

Managers, Process Engineers, change agents, Lean Six Sigma practitioners or others that desire an understanding of SPC

COURSE INCLUDES

➢ Training Handouts
➢ Training Completion Certificate
➢ Minitab guide
➢ Certified SPC professional

WHAT YOU WILL LEARN

➢ Understanding of basic statistics
➢ How to know the current capability of the processes
➢ How to enhance process capability
➢ How to identify the problem areas
➢ How to prioritise the problem areas
➢ How to set a stretch target
➢ How to take identify the root cause
➢ Basic problem solving tools
➢ How to monitor and control the process

SPC PROFESSIONAL CERTIFICATION CRITERIA

➢ Completion of training
➢ Test Score >70%

PROGRAM CONTENTS

✿ Introduction to SPC
✿ Basic statistics
✿ Basic characteristics of the process
✿ Sampling & data collection plan
✿ Pareto analysis
✿ Cause and effect diagram
✿ Histogram
✿ Scatter diagram
✿ Process Capability study
✿ Basics of control charts
✿ Run chart
✿ I-MR chart
✿ X bar- R chart
✿ X bar-S chart
✿ Attribute control charts
✿ P- Chart
✿ C- Chart
✿ NP- chart
✿ U-Chart
✿ Introduction to Minitab
✿ Methodology to deploy SPC
✿ Case Studies

Business Process Transformation- 1 Day

BPT - Course Overview

Program Details
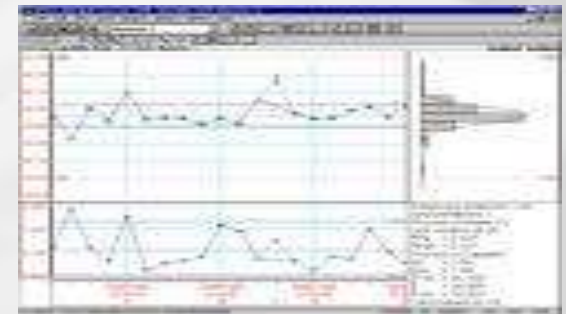
INTRODUCTION.

Operations are composed of processes that add value. Enhancing processes can contribute to the success of organizations. Step-by-step approach to process analysis ensures better success.These steps are:

1. Define the problem
2. Gather data to describe the problem
3. Determine possible causes
4. Select the root cause
5. Develop solution strategies
6. Test and evaluate solutions

Constant change is new reality in the world of business. A systematic process analysis methodology helps identify and correct bottlenecks and helps in eliminating any waste. Process analysis activity should be undertaken on a regular basis to help in increasing the capacity, take full advantage of the processes, improve throughput and reduce cycle time

COURSE DURATION

1 day

WHO SHOULD ATTEND

Managers, Process Engineers, change agents, Lean Six Sigma practitioners or others that desire an understanding of Business Process Transformation methodology

COURSE INCLUDES

➢ Training Handouts
➢ Training Completion Certificate
➢ Certified BPT professional

WHAT YOU WILL LEARN

➢ What is difference between activity, process & system
➢ What is process maturity model
➢ How processes mature over a period of time
➢ How to identify L-1, L-2, L-3… Processes
➢ How to transform process through 10 step model of BPT
➢ How to manage process through metrics management
➢ How to identify potential improvement projects
➢ How to prioritise of improvement projects
➢ How to involve employees in BPT

BPT PROFESSIONAL CERTIFICATION CRITERIA

➢ Completion of training
➢ Test Score >70%

PROGRAM CONTENTS

✿ Create Process Mission
✿ Document Process- SIPOC
✿ Document process – AS-IS
✿ Value stream mapping
✿ DocumentCustomer&Process requirements
✿ Identify Output & Process Measures
✿ Build process management system
✿ Establish data collection plan
✿ Process performance monitoring
✿ Develop dashboards with spec limits & targets
✿ Identify improvement opportunities

Kaizen Basic Training- 1 Day
Kaizen Event – 5 Days

Kaizen - Course Overview

Program Details

INTRODUCTION.

Kaizen comprises Japanese words **kai** and **zen** where kai means change and zen means good. The popular meaning is continuous improvement of all areas of a company not just quality . Kaizen focuses on waste , delivering value to customer and create value in process.

1 day basic training give the familiarisation to Kaizen and preparation to launch 'Kaizen Events' in any organisation or process. 5 days 'Kaizen event' some times called 'Kaizen Blitz' Provides a well planned , focused and rapid approach to eliminating waste in the process.

Kaizen builds up quality culture in the organisation by involving all employees in continual improvement process focuses on small, small improvements in day to day basis

COURSE DURATION
1 day
WHO SHOULD ATTEND
Managers, Process Engineers, change agents, Lean Six Sigma practitioners, people at shop floor or others that desire an understanding of Kaizen methodology
COURSE INCLUDES
➢ Training Handouts
➢ Training Completion Certificate
➢ Certified Kaizen professional

WHAT YOU WILL LEARN
➢ How to launch KAIZEN
➢ How to involve 100% employees in Kaizen
➢ How to create an infrastructure for Kaizen
➢ How to measure the benefits of Kaizen
➢ What are six levels of Kaizen continual improvement process towards world class organisation
➢ How to conduct 'Kaizen Events'
➢ How to plan for 'Kaizen Events'
➢ How to get buy-in from top management

KAIZEN PROFESSIONAL CERTIFICATION CRITERIA

➢ Completion of training
➢ Test Score >70%

PROGRAM CONTENTS

✿ Kaizen Introduction
✿ Kaizen Infrastructure set up
✿ 6- level kaizen deployment model
✿ Identification of seven types of waste
✿ Kaizen Issue identification workshop
✿ Kaizen Improvement workshop
✿ Kaizen review workshop
✿ Kaizen event planning and execution
✿ Kaizen certification to teams
✿ Kaizen integration with existing other best practices

Quality Circle - 2 Days

INTRODUCTION.

teams that follow a standard process of problem identification, root cause analysis, problem solving and implementation. In Japanese firms there is a greater focus on statistical quality control, employees meet on own time and discuss on their own issues and identify solutions on the issues. In Japan it is also called as Quality Control Circle (QCC)

Quality Circle builds up quality culture in the organisation by involving all employees in continual improvement process focuses on small improvements in day to day basis. Management coordinate and facilitate the activities of Quality Circle. To enhance the effectiveness of Quality Circle, one middle management person should act as a facilitator for each Quality Circle. It's a great tool to motivate and empower employees at shop floor.

COURSE DURATION
2 days

WHO SHOULD ATTEND
Managers, Process Engineers, change agents, Lean Six Sigma practitioners, people at shop floor or others that desire an understanding of Quality Circle methodology

COURSE INCLUDES
➢ Training Handouts
➢ Training Completion Certificate
➢ Certified Quality Circle professional

WHAT YOU WILL LEARN
➢ How to set up infrastructure for Quality Circle
➢ How to get commitment from management and employees
➢ How to involve employees in continual improvement process
➢ How to select QC projects
➢ How to conduct QC meetings
➢ What is the QC problem solving methodology
➢ How to validate the benefits and sustain it
➢ What are the criteria of evaluation to participate in national and internation competitions
➢ How the initiative is deployed in other organisations

QUALITY CIRCLE PROFESSIONAL CERTIFICATION CRITERIA

➢ Completion of training
➢ Test Score >70%

PROGRAM CONTENTS
✿ Origin and objectives of QC
✿ 10 elements of successful QC
✿ Infrastructure set up for QC
✿ Roles of coordinator, facilitator, leader and team members
✿ How to conduct QC meetings ?
✿ QC and personal growth
✿ Problem solving tools and methodology
✿ Identification of problem
✿ Prioritisation of problem
✿ Defining problem
✿ Analysis of problem
✿ Identification of root causes
✿ Developing solution
✿ Resistance management
✿ Implementation of solution
✿ Benefit validation
✿ Follow up and review
✿ Evaluation criteria of QCFI for national and international competitions
✿ Workshop
✿ Case studies

Measurement System Analysis - 1 Day

INTRODUCTION.

A **Measurement System Analysis**, abbreviated as **MSA**, is a specially designed experiment that seeks to identify the components of variation in the measurement. Just as processes that produce a product may vary, the process of obtaining measurements and data may have variation and produce defects. A Measurement Systems Analysis evaluates the test method, measuring instruments, and the entire process of obtaining measurements to ensure the integrity of data used for analysis and to understand the implications of measurement error for decisions made about a product or process. MSA is an important element of Six Sigma methodology and of other quality management systems. MSA analyzes the collection of equipment, operations, procedures, software and personnel that affects the assignment of a number to a measurement characteristic. A Measurement Systems Analysis considers the following: selecting the correct measurement and approach, assessing the measuring device, assessing procedures & operators, assessing any measurement interactions, and calculating the measurement uncertainty of individual measurement devices and/or measurement systems.

COURSE DURATION

1 day

WHO SHOULD ATTEND

Managers, People from Quality Control, R & D,QA, Process Engineers, change agents, Lean Six Sigma practitioners or others that desire an understanding of MSA methodology

COURSE INCLUDES

➢ Training Handouts
➢ Training Completion Certificate
➢ Minitab software application
➢ Certified Measurement System Analyst

WHAT YOU WILL LEARN

➢ Why we need MSA?
➢ What is relationship between MSA & process improvement?
➢ What are different types of MSA?
➢ What are various types of measurement errors?
➢ How to quantify those errors ?
➢ How to eliminate those errors ?
➢ What are the pre-cautions need to be taken to avoid those errors ?

MEASUREMENT SYSTEM ANALYST CERTIFICATION CRITERIA

➢ Completion of training
➢ Test Score >70%

PROGRAM CONTENTS

✿ Introduction
✿ Gause R & R vs MSA
✿ X Bar- R chart
✿ ANOVA
✿ Components of a measurement system
✿ Planning for MSA
✿ Sampling methodology
✿ Stability error
✿ Discrimination error
✿ Linearity error
✿ Repeatability & Reproducibility
✿ Accuracy vs Precision
✿ Precision to Tolerance ratio
✿ Minitab software application
✿ No. of distinct catagories
✿ Study variation
✿ Error %age contributed my measurement system
✿ Workshop
✿ Case studies

Process Capability Study - 1 Day

INTRODUCTION.

Over a period of time inefficiencies built into each and every process. Hence measurement of Process Capability for each and every process at a regular interval is very essential . This also help to increase efficiency and improve the process on regular basis.

Process capability Studies are conducted to obtain early information on the performance of new or revised processes relative to internal or customer requirements. In many cases, preliminary studies should be conducted at several points in the evolution of new processes (e.g., at the equipment or tooling subcontractor's plant, after installation at the supplier's plant) These studies should be based on as many measurements as possible.

Chinese Proverb :

If you don't know where you are going, any road will do.

Humphrey Proverb :

If you don't know where you are, a map won't help.

COURSE DURATION

1 day

WHO SHOULD ATTEND

Managers, Process Engineers, change agents, Lean Six Sigma practitioners or others that desire an understanding of process capability methodology

COURSE INCLUDES

➢ Training Handouts
➢ Training Completion Certificate
➢ Minitab software application
➢ Certified Process Capability Analyst

WHAT YOU WILL LEARN

➢ What is Voice of Customer (VOC)?
➢ What is Voice of Process (VOP) ?
➢ How to measure capability of the process ?
➢ What is the potential capability of the process?
➢ What are short term and long term capability of process ?
➢ Can we meet customer's requirement with current process capability?
➢ Do we need investment to enhance process capability and satisfy customer ?
➢ What is current sigma level and defect level of the process ?
➢ What actions we need to take to enhance process capability ?

PROCESS CAPABILITY ANALYST CERTIFICATION CRITERIA

➢ Completion of training
➢ Test Score >70%

PROGRAM CONTENTS

✿ Introduction
✿ Pre-requisite of capability study
✿ Understand Voice of the Customer (VOC)
✿ Understand Voice of the Process (VOP)
✿ Process Capability (Cp)
✿ Process Capability Index (Cpk)
✿ Capability vs Performance
✿ Relationship between Cp , Cpk & Pp, Ppk
✿ Sigma level of process
✿ Minitab software applications
✿ Process Capability for attribute data
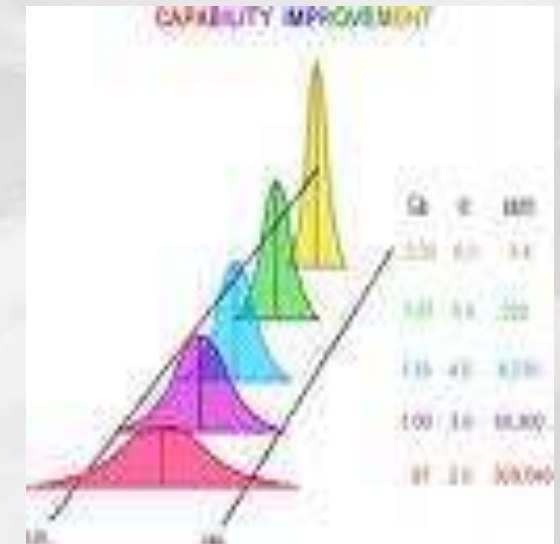
Quality Function Deployment (QFD) - 1 Day

INTRODUCTION.

QFD was first conceptualized in 1966 as a method or concept for new product development under the umbrella of Total Quality Control, hinshitsu tenkai (quality deployment) and was developed by Dr. Shigeru Mizuno and Yoji Akao. The Japan Society of Quality Control formed a research group to specifically study Quality Function Deployment (QFD) in 1978. **QFD is used to translate customer requirements to engineering specifications**. It is a link between customers - design engineers - competitors -manufacturing. It provides an insight into the whole design and manufacturing operation from concept to manufacture and it can dramatically improve the efficiency as production problems are resolved early in the design phase.

It is very powerful as it incorporates the voice of the customer in the designs - hence it is likely that the final product will be better designed to satisfy the customer's needs. Moreover, it provides an insight into the whole design and manufacturing operation (from concept to manufacture) and it can dramatically improve the efficiency as production problems are resolved early in the design phase.

COURSE DURATION

1 day

WHO SHOULD ATTEND

Managers, Design engineers, People from Sales & Marketing, R & D, Process Engineers, change agents, Lean Six Sigma practitioners or others that desire an understanding of Quality Function Deployment methodology

COURSE INCLUDES

➢ Training Handouts
➢ Training Completion Certificate
➢ Certified QFD Professional

WHAT YOU WILL LEARN

➢ What is Voice of Customer (VOC)?
➢ How to capture VOC ?
➢ How to convert language of customer to processl language or Critical to Quality (CTQ) parameters
➢ What is house of Quality ?
➢ Steps to prepare house of Quality ?
➢ How to built quality into the product right in design stage ?
➢ How to make product /service right at the first time ?
➢ How to bring in 'ZERO' defect concept to process ?

QFD PROFESSIONAL CERTIFICATION CRITERIA

➢ Completion of training
➢ Test Score >70%

PROGRAM CONTENTS

✿ Introduction
✿ Tools to capture voice of the customer
✿ House of quality
✿ QFD & Quality table
✿ Required items to required quality
✿ Quality deployment table
✿ Quality element deployment table
✿ Planned Quality vs Design Quality
✿ Benchmarking
✿ Target setting for development & Improvement
✿ Survey for troubles and claims
✿ Survey for current technology and equipment
✿ Selection of technology tasks
✿ Resolution of technology task
✿ Rewrite Quality table
✿ Quality Assurance characteristics
✿ Process planning
✿ QC Process chart
✿ Standard Operating Procedure
✿ Benefits
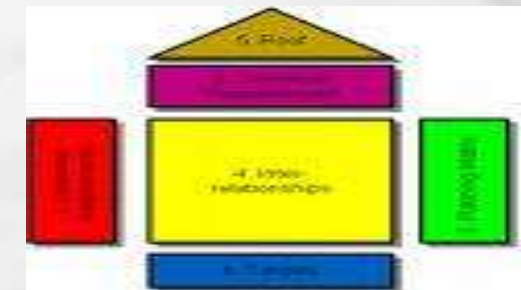
KANO Analysis - 1 Day

INTRODUCTION.
In the late 1970s Dr. Noriaki Kano of Tokyo Rika University further refined the notion of quality derived partially from his study of Herzberg's "Motivator-Hygiene Theory" and re-defined quality along two dimensions in contrast to the linear "good-bad" "ok-not ok" dimension in existence all along. The two dimensions were: 1) the degree to which a product or service performs, & 2) the degree to which the user is satisfied. The correlation of quality on two axes further led to three unique definitions of quality, namely:

- **Must-be** requirements of Customer (Basic quality)
- **One Dimentional** requirements of Customer (Performance quality)
- **Delighter** requirements of Customer (Excitement quality)

This analysis is useful to capture voice of the customer , various types of customer requirements . KANO analysis helps us to in product/service design and preparing Multi Generation Product Plan (MGPP)

COURSE DURATION
1 day
WHO SHOULD ATTEND
Managers, Design engineers, People from R & D, Process Engineers, change agents, Lean Six Sigma practitioners or others that desire an understanding of process capability methodology
COURSE INCLUDES
- Training Handouts
- Training Completion Certificate
- Certified KANO Analysis Professional
WHAT YOU WILL LEARN
- How to determine value to customer?
- What is Value & Value stream ?
- What are various types of customer requirements ?
- How best we can capture requirements of customer ?
- How to conduct survey ?
- How to analyse results & take action ?
- How to integrate VOC (Voice of Customer) with VOP(Voice of process) & VOD (Voice of design)

KANO ANALYSIS PROFESSIONAL CERTIFICATION CRITERIA

- Completion of training
- Test Score >70%

PROGRAM CONTENTS
- Introduction to KANO analysis
- KANO Model
- Value & Value stream
- Reactive vs Proactive mode of voice of the customer
- KANO survey
- Designing questionnaire
- Conduct survey
- Analysis of the survey
- Preparation of Multi Generation Product Plan (MGPP)
- Integration with process parameters through QFD
- Workshop
- Case Studies

Design of Experiment (DOE)- 3 Days

INTRODUCTION.
DOE is a systematic approach of investigation of a system or process. A series of structured tests are designed in which planned changes are made to the input variables of a process or system. The effects of these changes on a pre-defined output are then assessed

.

DOE is important as a formal way of maximizing information gained while resources required. DOE can be used to find answers in situations such as "what is the main contributing factor to a problem?", "how well does the system/process perform in the presence of noise?", "what is the best configuration of factor values to minimize variation in a response?" etc. In general, these questions are given labels as particular types of study. In the examples given above, these are problem solving, parameter design and robustness study.
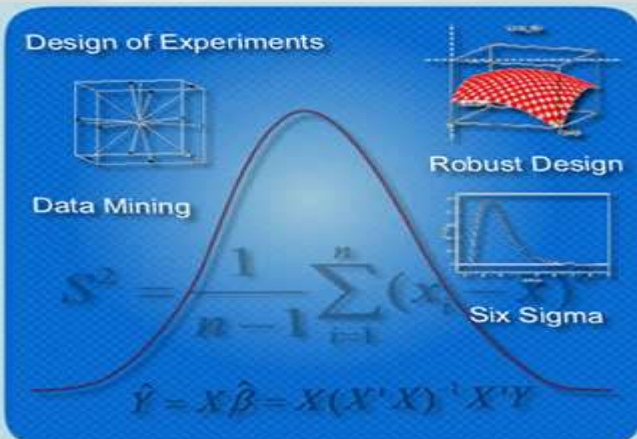
COURSE DURATION
3 days

WHO SHOULD ATTEND
Managers, Process Engineers, R & D people, change agents, Lean Six Sigma practitioners, or others that desire an understanding of DOE methodology

COURSE INCLUDES
➤ Training Handouts
➤ Training Completion Certificate
➤ Certified DOE professional

WHAT YOU WILL LEARN
➤ How to find out 'Vital few' causes from 'Trivial Many' scientifically ?
➤ How to exactly identify the effect of factors on responses ?
➤ How to identify the effect of interaction between the factors on responses ?
➤ How to plan for a DOE ?
➤ How to execute DOE ?
➤ Which type of DOE need to be selected for which problem ?
➤ How to optimise factor settings to get maximum output ?
➤ How to optimise the composition of the mixture/solution to get maximum response ?
➤ How to set parameters to design a robust process ?

DOE PROFESSIONAL CERTIFICATION CRITERIA

➤ Completion of training
➤ Test Score >70%

PROGRAM CONTENTS

✿ Introduction to DOE
✿ One factor at a time (OFAT)
✿ Fractional factorial design
✿ Aliasing
✿ Fractional factorial design
✿ Placket Burman design
✿ Blocking
✿ Centre point
✿ Response Surface Design (RSD)
✿ Mixture design
✿ Orthogonal Array(OA) design
✿ Taguchi robust design
✿ Other optimisation techniques
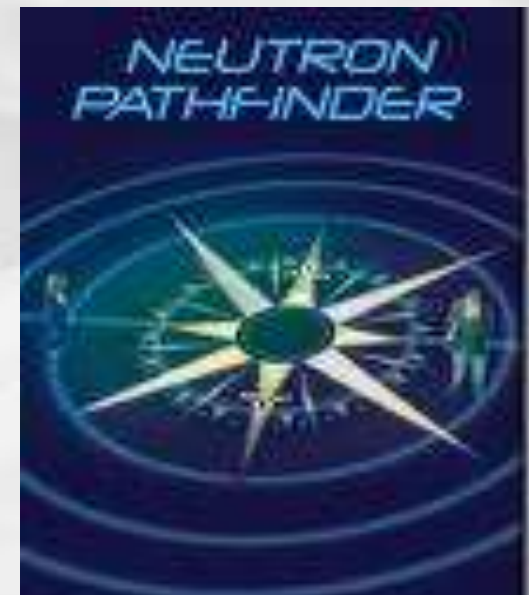
Failure Mode & Effect Analysis (FMEA)- 1 Day

INTRODUCTION.
Failure Mode and Effects Analysis is a systematic technique which identifies and ranks the potential failure modes of a design or a process in order to prioritize improvement Actions

FMEA is an important analysis tool bacause –

• It is used to predict and prevent process defects

• It helps in predicting process faults before a change is made or before a process is started

• It is most helpful in process development stage , even before the process is begun
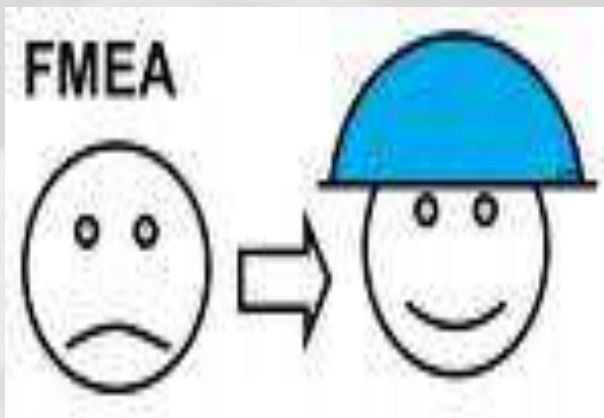
COURSE DURATION
3 days
WHO SHOULD ATTEND
Managers, Process Engineers, R & D people, change agents, Lean Six Sigma practitioners, or others that desire an understanding of FMEA methodology
COURSE INCLUDES
➢ Training Handouts
➢ Training Completion Certificate
➢ Certified FMEA professional
WHAT YOU WILL LEARN
➢ How to pre-screen process inputs for problem solving ?
➢ How to identify quick hit actions ?
➢ How to identify potential failure modes in process/design ?
➢ How to prioritise risk mitigation efforts ?
➢ How FMEA can be used for new product /process design ?
➢ How FMEA can be used to solve problems in existing process ?

FMEA PROFESSIONAL CERTIFICATION CRITERIA

➢ Completion of training
➢ Test Score >70%

PROGRAM CONTENTS

✿ Introduction to FMEA
✿ FMEA and it's applications
✿ Types of FMEAs
✿ Steps to make FMEA
✿ Process Mapping
✿ Controllable and Noise factor
✿ Potential failure modes
✿ Effect of failure
✿ Determination of causes of failure
✿ Various levels of control in process
✿ Risk Priority Number (RPN)
✿ Rating scale for Severity, Occurance & Detectability
✿ Action planning
✿ Post RPN
✿ Design FMEA
✿ Process FMEA

5S WORKSHOP - 2 Days

INTRODUCTION.
5S is a Japanese concept of better workplace management, comprises of following 5 Ss.
Seiri (sort), Seiton (set in order), Seiso (shine), Seiketsu (standardize), Shitsuke (sustain)

The 5S - Campaign is a common action for everyone to create tidy and clean working area.
The objectives of 5S are –
• Creation of a clean and more pleasant work environment
  • Creation of space and reduction of archiving
    costs
  • Reduction of unnecessary searching times for
material, documents, etc.
Advantages of 5S are -
  • Quicker recognition and elimination of wastes
  • Reduction of disturbances
  • Employees feel better on the job
  • Work environment is presentable to customers at any time

COURSE DURATION
2 days
WHO SHOULD ATTEND
Managers, Process Engineers, change agents, Lean Six Sigma practitioners,Shop floor people or others that desire an understanding of 5S methodology
COURSE INCLUDES
➤ Training Handouts
➤ Training Completion Certificate
➤ Certified 5S professional
WHAT YOU WILL LEARN
➤ How to make our workplace spic & span all the time ?
➤ How to do preparation for 5S deployment
➤ How to set up infrastructure for 5S sustainance
➤ How to involve top management in 5S ?
➤ How to involve employee for 5S sustainance ?
➤ How to do documents management ?
➤ How to create a clean productive work place to motivate employees at shop floor ?

5S PROFESSIONAL CERTIFICATION CRITERIA

➤ Completion of training
➤ Test Score >70%

PROGRAM CONTENTS

✿ Introduction
✿ Preparation for 5S
✿ Infrastructure for 5S
✿ Sorting
✿ Set in order
✿ Shining
✿ Standardising
✿ Sustaining
✿ 5 levels of 5S
✿ 5S audit
✿ Workshop
✿ Case studies

Value Stream Mapping (VSM) - 1 Day

INTRODUCTION.

Value Stream Map is a visual tool used to document the flow of products or services through a system. The VSM differentiates the value-adding activities of a system from the non-value-adding ones. Recording the time taken for each activity shows what percentage of valuable time an object or person spends in a system. Any non-value-adding time indicates an opportunity for possible improvement within the system.

The VSM shows the process flow from order to delivery and includes - a) information & material flow, b) product throughput & cycle times, c) resources utilized, d) value added times and e) location of significant waste . It helps in identifying potential improvement projects need to be taken up to enhance efficiency and effectiveness of the processes.

COURSE DURATION
1 day

WHO SHOULD ATTEND
Managers, Process Engineers, change agents, Lean Six Sigma practitioners,Shop floor people or others that desire an understanding of VSM methodology

COURSE INCLUDES
➤ Training Handouts
➤ Training Completion Certificate
➤ Certified VSM professional

WHAT YOU WILL LEARN
➤How value is flowing across the supply chain ?
➤How product/service flow is happening in process?
➤How information flow is happening in the organisation ? How to optimise ?
➤ What is current state of the process ?
➤What should be the future state of the process?
➤ How to establish flow, reduce inventory, enhance value added percentage in the process?

VSM PROFESSIONAL CERTIFICATION CRITERIA

➤ Completion of training
➤ Test Score >70%

PROGRAM CONTENTS

✿ Introduction to VSM
✿ Hierarchy of process discovery
✿ Product/Service family
✿ Scoping of VSM
✿ Components of VSM
✿ Steps to prepare VSM
✿ Current state map
✿ Future state map
✿ Opportunities for Improvement
✿ Implementation plan
✿ Workshop
✿ Case stydies
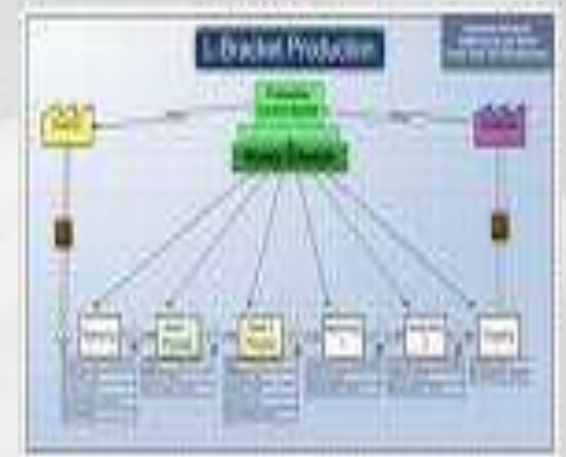
Problem Solving Tools - 2 Days

INTRODUCTION.

In any business endeavor, there are various processes working simultaneously to achieve a certain desired business objectives. Any deviation in the outcome of those processes from the desired outcome can be considered as a defect or a failure or an event or a problem.

For every problem, there is at least one simple, plausible and wrong solution. There are no 'quick fixes' to any problem.Quick fixes normally results in complacency and false security of having cured problem. Thus every problem needs to be solved in a scientific and systematic manner.

COURSE DURATION
2 days

WHO SHOULD ATTEND
Managers, Process Engineers, change agents, Lean Six Sigma practitioners,Shop floor people or others that desire an understanding of problem solving tools

COURSE INCLUDES
➢ Training Handouts
➢ Training Completion Certificate
➢ Certified Quality tools professional

WHAT YOU WILL LEARN
➢How to identify a problem ?
➢How to prioritise the problems ?
➢ How to understand the problem ?
➢ What are various basic problem solving tools?
➢ What are various management tools ?
➢ What methodology we need to follow to solve the problem ?

QUALITY TOOLS PROFESSIONAL CERTIFICATION CRITERIA

➢ Completion of training
➢ Test Score >70%

PROGRAM CONTENTS

✿ Introduction to problem
✿ Problem definition
✿ 8D approach
✿ Check sheet
✿ Pareto chart
✿ Cause and effect diagram
✿ Graph & Control Charts
✿ Scatter plot
✿ Histogram
✿ Stratification
✿ Afinity diagram
✿ Force field analysis
✿ Matrix diagram
✿ Process Decision Programme Chart
✿ Interrelationship digraph
✿ Nominal Group Technique
✿ Tree Diagram

Problem Solving Tools - Course Overview

Program Details

Change Management - 1 Day

INTRODUCTION.

Change management is the process of developing a planned approach to change in an organization. Typically the objective is to maximize the collective benefits for all people involved in the change and minimize the risk of failure of implementing the change. The discipline of change management deals primarily with the human aspect of change, and is therefore related to pure and industrial psychology

Change leaders that understand the phases of transition and are able to apply management strategies for each of the transition phases accelerate the time to acceptance which in turn results in desired behavior.

COURSE DURATION
1 day

WHO SHOULD ATTEND
Top Management, Managers, Process Engineers, change agents, Lean Six Sigma practitioners, or others that desire an understanding of Change management methodology

COURSE INCLUDES
➤ Training Handouts
➤ Training Completion Certificate
➤ Certified Quality tools professional

WHAT YOU WILL LEARN
➤How to manage change
➤When do we need change
➤Is change good every time ?
➤What are the steps for change ?
➤ How to make change last ?
➤ How to plan for change ?

CHANGE MANAGEMENT PROFESSIONAL CERTIFICATION CRITERIA

➤ Completion of training
➤ Test Score >70%

PROGRAM CONTENTS

✿ Dynamics of change
✿ Change model
✿ Steps for leading change
✿ Establish sense of urgency
✿ Create support team
✿ Develop vision
✿ Communication skills
✿ Resistance management
✿ Employee empowerment
✿ Create short term wins
✿ Team dynamics

Lean Six Sigma Overview - 1 Day

INTRODUCTION.

Six sigma is a highly disciplined approach used to reduce the process variations to the extent that the level of defects are drastically reduced to less than 3.4 per million opportunities (DPMO). Six sigma is a powerful approach to achieve breakthrough improvements in manufacturing, engineering and business processes. It is a new way of doing business that would eliminate the existing defects efficiently and prevent defects from occurring .

Lean evaluates the entire operation of the factory and restructures the method in order to reduce wasteful activities like waiting, transportation, material hand-offs, inventory, over-production, etc. It focuses on product flow and operator activity i.e, how can you produce the product in the least amount of time, and how you can standardize the operator methods and give the operator what he/she needs? .

COURSE DURATION
1 day

WHO SHOULD ATTEND
Top Management, Managers, Process Engineers, change agents, or others that desire basic understanding of Lean Six Sigma methodology
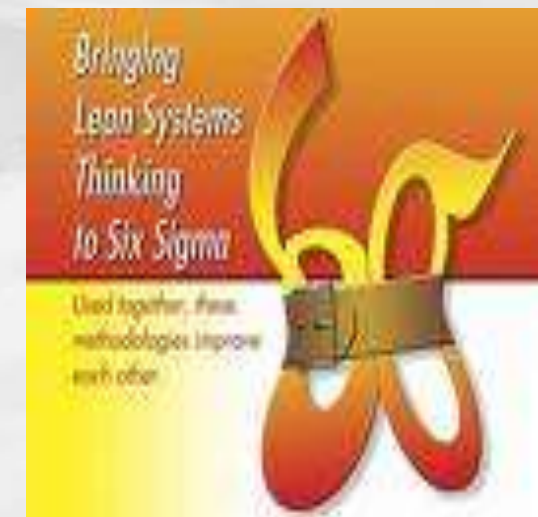
COURSE INCLUDES
➤ Training Handouts
➤ Training Completion Certificate

WHAT YOU WILL LEARN
➤What is Lean methodology ?
➤ Can it be used for transactional processes ?
➤ What are various types of waste ?
➤ How to create improvement culture in the organisation ?
➤ What is Six Sigma ?
➤Brief history of Lean & Six Sigma ?
➤ What kind of infrastructure is required for Lean Six Sigma deployment ?
➤ What kind of ROI one should target for ?
➤ How to select business critical projects ?
➤ How to deploy Lean Six Sigma ?

PROGRAM CONTENTS

✿ Introduction to Lean Six Sigma
✿ History of Lean
✿ History of Six Sigma
✿ Lean principles
✿ Types of waste
✿ Lean Six Sigma Integration
✿ Lean Six Sigma deployment methodology
✿ Project identification and prioritisation
✿ Black Belt/Green Belt selection
✿ Poject execution
✿ DMAIIC Methodology
✿ Project review
✿ Financial validation of projects
✿ Institutionalisation of Lean Six Sigma

Bringing
Lean Systems
Thinking
to Six Sigma

Used together, these methodologies improve each other.

Program Details

Advanced Statistical Tools - 3 Days

INTRODUCTION.

Advanced statistical tools are not being used very frequently but these tools are used to solve some of the cronic business issues. Black Belt/ Master Black Belt candidates , who are already trained in basic statistical and problem solving tools should go for this training.

COURSE DURATION
3 days

WHO SHOULD ATTEND
Black Belt and Master Black Belt

COURSE INCLUDES
➢ Training Handouts
➢ Training Completion Certificate

WHAT YOU WILL LEARN
➢What are the advanced statistical tools ?
➢What are the tools, which are not covered in Black Belt curriculum
➢ How to solve complex issues ?
➢ How to generate out of the box solutions ?

PROGRAM CONTENTS

✡ Introduction
✡ Hypothesis testing
✡ Mean Testing – 1Z test
✡ Mean testing- 2t- test
✡ Mean testing- Paired t-test
✡ Sigma testing- Level1- Chi Square test
✡ Sigma testing- Level2- f-test/ Levene's test
✡ Sigma testing- > Level2- Levene's/ Bartlett's test
✡ Discrete probabilistic distributions
✡ Propertion tests (1-p, 2-p)
✡ Logistic regression
✡ Contingency tables
✡ Forecasting analysis
✡ Multivariate Study- Principal Components and Factor analysis
✡ Non-papametric analysis
✡ Response Surface Methodology
✡ Orthogonal Array Design
✡ Taguchi Robust Design