INDIAN STATISTICAL INSTITUTE

SQC & OR Unit
Bangalore

Announces

Online Certification Program
for
SIX SIGMA MASTER BLACK BELT
with Analytics & Industry 4.0
(MBB-38 Batch)

23 – 28 February & 09 – 14 March, 2026

Indian Statistical Institute,
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INTRODUCTION

- Six Sigma methodology is successfully implemented world over with significant results for more than three decades.
- Its implementation has spread to all business segments including higher education, healthcare, finance etc.
- Over the years, Six Sigma is integrated with Lean manufacturing and Lean Six Sigma has become very popular.
- Recently Analytics, Big Data analysis, Industry 4.0 etc. was also integrated with Six Sigma to make it more data based.

PROGRAM HIGHLIGHTS

- This program aims to discuss the details of Six Sigma, Lean, Analytics and Industry 4.0 so that the Master Black Belts get a wider perspective and integrated usage of all these methods.
- A total review of DMAIC methodology along with the details of Analytics and Industry 4.0 are covered during this course
- Usage of softwares like Minitab and Python for data analysis
- Discussion of real life case studies and experience sharing

VENUE AND TIMINGS

The Sessions shall be held **ONLINE** in **Two Phases** *(Total 12 days)*

a) **23 – 28 February, 2025, and** b) **09 – 14 March, 2026**
during **10.00 hrs to 17:30 hrs**,
through Microsoft Teams (or any other similar selected platform)

FACULTY

Specialists from Indian Statistical Institute, and Experts from Academics/ Industry.

WHO CAN ATTEND

- Certified Six Sigma Black Belts

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CERTIFICATION CRITERIA

- **Qualifying certificate** Those who have 100% *attendance will be issued a participation certificate*
- **MBB Card** shall be issued after
  - **i)** Guiding **2** projects on improvement, **and**
  - **ii)** a) Conducting **20** hours of training in related topics, **OR**
    b) Attending **one** conferences/seminars/workshops on related subjects

  in the following **12 months.**

The Training Sessions shall include Topics like:

Introduction

- Overview of Six Sigma DMAIC Methodology
- Overview of Six Sigma Project execution (DMAIC or DFSS/ DMADV) (Define- Measure- Analyse- Improve & Control, Design for Six Sigma, Define Measure Analyse Design and Validate)
- Project Review Guidelines and selection of Belts for the projects

DMAIC

- Development of Project Team and Charter , SIPOC, VOC & Quality Function Deployment, CTQ Tree, Type of Data, knowledge of Statistical distributions, Data Collection Planning, Measurement System Evaluation for Measurable data (Gauge R&R) as well as for attributes (Kappa Value)
- Understanding variation-special causes vs. common causes (like dot plots, box plots, histogram and control charts, Stratification methods (like Pareto, Bar Diagrams, stratified dot plot, stratified scatter plot, Box Plot, Multi-Vari Charts etc)
- Normality test of a data, Evaluation of Process Capability for data from a Normal distribution; Concept of confidence interval; Concept of Short Term, Long Term Process Capability and assessment of Sigma level
- Process Analysis, VA/ NVA analysis & Value Stream Mapping
- Organizing for potential causes using cause and effect diagram, FMEA & Tree Diagram
- Verification/validation of causes using work place investigation (GEMBA)
- Correlation and simple & multiple regression, Logistic regression, Classification and Regression Tress (CART), Estimation &Test of Hypothesis, Design of experiment and details of full factorial, fractional factorial and screening design, Taguchi Methods of Parameter Design and Tolerance Analysis and usage of these tools for causes validation
- TRIZ, Conjoint analysis, Multivariate Analysis like Cluster Analysis, Factor Analysis etc., Multivariate Control Chart, MANOVA
- Solution Generation, prioritisation, piloting & Risk Analysis, Concept and Examples of Poke Yoke, Visual Workplace & 5S; Planning for full scale implementation, Evaluation of results after implementation, Monitoring the results through Statistical Process Control after implementation of the solutions, Institutionalisation and integration of the solutions, Process of Closing the Project
- Work through six sigma projects of different applications
- Group Discussions and Project Presentations

Industry 4.0

- Overview of IIOT (Industrial Internet of Things) and its role in process control and real-time monitoring.
- Leveraging Additive Manufacturing (3D printing) for reducing lead times, costs, and waste in manufacturing.
- Overview of Robotics and automation of solutions to improve process efficiency and reduce defects.

Analytics

- Introduction to Machine Learning
- Prediction modelling using Machine Learning Techniques including Tree Based methods, Bagging, Boosting, etc.

PARTICIPATION FEE :

INR 60,000/- per head *[plus tax of 18%]*

*[With tax, this comes to **INR 70,800/-]***

NOTE: **1. Total fees (with Taxes) to be paid in full along with the application**

(Refer to Page 2 of Registration Form for details).

2. If there is any change in the Govt. taxes, the balance amount to be adjusted.

3. For information on Registration, refer to Page 2 of the Registration Form.

4. Seats are limited. Enrolment on First-Come-First-Served basis.

REGISTRATION :

Refer to Registration Form for details of application and certification.

CONTACT :

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INDIAN STATISTICAL INSTITUTE

- The **Indian Statistical Institute** is a quasi central organization under the Ministry of Statistics and Program Implementation.
- It is declared by an **Act of Parliament** as an **Institute of National Importance**.
- Over the years the Institute has grown as a multi-disciplinary organization.
- It functions as a **University** empowered to award degrees up to D.Sc.; as a **Corporation** in undertaking large scale projects; as a **Firm of Consultants** to industries to improve Quality, Reliability and Efficiency and as a **Meeting place** of Scientists, Economists and Literary figures from all parts of the world.
- For further details, please visit website **www.isibang.ac.in / www.isical.ac.in**

Role & Functions of SQC & OR DIVISION

- The **pioneer and leader** in blending **statistical theory with practice** and institutionalizing the **continuous improvement process** into a sustaining system.
- To strengthen **national economy** through continual search for excellence in Quality.
- To disseminate the basic concepts and **techniques for Quality Improvement** by organizing Training programs, Workshops and In-house programs.
- To develop **highly skilled professionals** capable of self actualization.
- To help industries in their efforts to cope up with the growing challenge of global competition through implementation of quality system based on **ISO-9000 series, ISO-14000, TS-16949-2002 standards, Six Sigma & World Class Manufacturing**.
- To continually develop and improve methodologies through **applied research** efforts to attain International Standards in services provided.
- To provide **solutions to the problems** pertaining to the entire gamut of complex Business Decision Processes with the aid of **Statistics and Operations Research**.