INDIAN STATISTICAL INSTITUTE

SQC & OR Unit

Street No. 8, Habsiguda, HYDERABAD

announces

Online Certification Program

On

STATISTICAL METHODS

for

INTEGRATED MANAGEMENT SYSTEMS

(ISO 9001 QMS, ISO 14001 EMS & ISO 45001 OHSMS),

SIX SIGMA GREEN BELT & BUSINESS ANALYTICS

July - August 2025

(Saturdays & Sundays: 9.00 – 1.30 hrs)

(20 Half days)

Program commences on 5th July 2025

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Clauses related to Statistical Methods from few International Organization for Standardization (ISO) Standards

(viz., ISO 9000, ISO 9001, ISO 9004, ISO 14001, ISO 45001 & ISO 10017 Standards)

ISO 9000:2015 Quality management systems – Fundamentals and vocabulary

[The following clause(s) advocate(s) application of Statistical Techniques]

2.3.6 Evidence-based decision making

2.3.6.1 Statement: *Decisions based on the analysis and evaluation of data and information are more likely to produce desired results*

2.3.6.2 Rationale: *……. Facts, evidence and data analysis lead to greater objectivity and confidence in decision making.*

ISO 9004:2018 Quality management — Quality of an organization — Guidance to achieve sustained success

[The following clause(s) advocate(s) application of Statistical Techniques]

10.1 Analysis and evaluation of an organization's performance.

The organization should establish a systematic approach to collect, analyse and review available information

10.2.3 …….. these measurable Key Performance Indicators(KPIs) should be:

10.2.3 a) ….. to set measurable objectives, monitor and predict trends, and take actions for improvement….

10.3 Analysis of the organization's performance should enable …..

10.4.4 …..establish and maintain a methodology for benchmarking …..

ISO 9001:2015 Quality management systems – Requirements

9.1 Monitoring, measurement, analysis and evaluation – ..... *The organization shall evaluate the performance and effectiveness of the QMS.*

NOTE Methods to analyse data can include statistical techniques

ISO 14001:2015 Environmental management systems

– Requirements with guidance for use.

[The following clause(s) advocate(s) application of Statistical Techniques]

9 Performance evaluation

9.1 Monitoring, measurement, analysis and evaluation

- The organization shall monitor, measure, analyse and evaluate its environmental performance

ISO 45001:2018 ***Occupational Health and Safety Management Systems***

[The following clause(s) advocate(s) application of Statistical Techniques]

9.1.1 Monitoring, measurement, analysis & performance evaluation of OH&S

The organization shall establish, implement and maintain a process(es) for monitoring, measurement, analysis and performance evaluation.

ISO 10017:2021 ***Guidance on Statistical Techniques for ISO 9001:2015***

3.1 statistical technique

methodology for the analysis of quantitative data associated with variation in products, processes, services and phenomena under study to provide information on the object of the study.

4 Statistical techniques

descriptive statistics, design of experiments, hypothesis testing, measurement system analysis, process capability analysis, regression analysis, reliability analysis, sampling, simulation, statistical process control, statistical tolerance & time series analysis.

(the above list is not complete / exhaustive)

Integrated Management System(IMS)

IMS are integrating or merging of two or more management systems. In the present context IMS deals with the three generic management systems of Quality, Environment and Occupational Health and Safety. Viz., ISO 9001:2015 Quality Management Systems, ISO 14001:2015 Environmental Management Systems and ISO 45001:2018 Occupational Health and Safety Management Systems.

These three generic standards are based on the methodology of PDCA (Plan-Do-Check-Act) Cycle aimed at continual Improvement. ISO 9001 specifies requirements for a QMS to consistently provide and continually improve product/service that meets customer requirements. ISO 14001 specifies requirements for Environmental protection to mitigate the environmental pollutions. ISO 45001 specifies requirements for Occupational Health and Safety Management Systems.

BENEFITS

Integrated Management Systems offers numerous benefits including improved statutory & regulatory compliance, optimized performance of Quality, Environment, Occupational Health and Safety processes. Achieve QESH objectives aligned to business goals resulting in reduced redundancy and costs.

TOPICS

Coverage of the following ISO standards viz., ISO 9000:2015, ISO 9004:2018, ISO 9001:2015, ISO 14001:2015, ISO 45001:2018 and ISO 10017:2021 - Guidance on Statistical Techniques for ISO 9001. Correspondence among the clauses of ISO 9001, ISO 14001 and ISO 45001. Gap analysis, IMS Policy and QESH Objectives, Documentation, Road map to IMS, Benefits of IMS, Environmental Aspect/Impact studies, Identification of significant Aspects, HIRA, Identification of significant Hazards, Legal Requirements, MSDS, EPP, OCP, QMPs, EMPs, H&SMPs, WPs etc. Guidelines on IMS Audits, preparation of NCRs and Audit reports. Roadmap to Certifications under the IMS.

Types of Data, Statistical distributions – Binomial, Poisson & Normal. Seven Tools of QC. Understanding variation – Special causes vs. Common causes. Evaluation of Process Capability and Process Capability Indices. Monitoring of results through SPC- Control Charts for Variables and Attributes. Brief coverage of Six Sigma concepts.

The participants shall use Desktop / Laptop Computers. Minitab Statistical Software will be extensively used during the training. MINITAB Software (Free-one-month-trial-version) may be downloaded from the site *www.minitab.com*

Six Sigma Green Belt

This program is designed to help professionals embark on a journey of professional growth and organizational excellence with Six Sigma Green Belt certification. Designed for individuals aspiring to enhance their problem-solving skills and contribute to process improvement, this program equips them with the tools and methodologies to drive tangible results.

BENEFITS

The participants will

- Gain in-depth knowledge of Six Sigma principles, DMAIC methodology, statistical tools, and process improvement techniques
- Comprehend the Define, Measure, Analyze, Improve, and Control phases of the Six Sigma process.
- Acquire proficiency in statistical analysis tools such as Minitab and understand how to interpret data for informed decision-making
- Able to drive process efficiency, develop a structured approach to problem-solving, and contribute to cost savings within the organization, making them invaluable assets to their team

TOPICS

Six Sigma Overview, Identification, Prioritization and selection of Improvement opportunities, Roles and responsibilities in Six Sigma implementation, Overview of Six Sigma Project execution DMAIC

(Define- Measure-Analyze-Improve & Control) methodology

Development of Project Team and Charter, Define and Map Processes to be improved. SIPOC (Supplier –Input – Process – Output – Customer), Types of Data, understanding variation, Generating insights through descriptive analysis, Introduction to probability and normal distribution, Process capability analysis, Sigma Rating calculation & Project baselining

Minitab statistical software will be extensively used during the training.

Organizing for potential causes using the Cause and Effect diagram and FMEA. Graphical techniques for short-listing root causes (Scatter plot, Box plot, Interval plot, Conditional Density plot, Mosaic plot, etc), Analytical techniques for short-listing root causes (Test of hypothesis, ANOVA, Correlation and regression, Design of Experiments), and Case studies on shortlisting root causes using graphical and analytical techniques

Generation of improvement ideas/ solutions, Evaluation, and selection of solutions, Pilot and full-scale implementation.

Process evaluation and monitoring mechanism using Control Charts for controlling processes. Institutionalization and integration of the solutions, and Project closure.

Business Analytics

This program is designed to equip professionals with the capabilities in extracting implicit, previously unknown and potentially useful knowledge from large datasets.

Benefits

Participants will acquire knowledge required for

- Data exploration and visualization
- Preprocessing and transformations
- Supervised (predictive modeling) and unsupervised learning techniques
- Interpretation and validation of results

Topics

- Introduction to analytics
- Data exploration and visualization techniques
- Inferential Statistics (Test of Hypothesis, ANOVA, etc)
- Predictive modeling techniques
  - Linear and polynomial regression
  - Dummy variable regression
  - Logistic regression
  - Classification and regression tree
  - Regression Splines
  - Artificial Neural Networks
  - Naïve Bayes classifier, K nearest neighbor method, Support Vector Machines, etc.
  - Leave one out and k fold cross-validation methods
- Unsupervised learning techniques
  - Factor analysis
  - Cluster analysis
  - Association rule mining

- MINITAB and open source packages like R and R Studio will be used

Certification criteria

Participants with 80% attendance, submitting weekly assignments, and securing 70% Marks in the Online Test conducted on the last day of the respective program will be awarded Successful Completion Certificate. Others will be given Participation Certificate.

PARTICIPANTS' PROFILE

- Degree or Diploma holder in any discipline with basic knowledge of quality management.
- Experience of involvement in Quality Improvement projects is desirable.
- The knowledge of a programming language is desirable but not mandatory.
- Management Personnel/Executives from functions– R&D, Production, Marketing & Distribution, Purchase, QA/QC, Calibration & Testing, SCM, HR, SHE etc.
- MRs / DMRs / CMRs or personnel associated with activities related to ISO 9001 / ISO 14001 / ISO 45001 (desirable but not mandatory for Integrated Management Systems Training)

FACULTY

- Dr. S M Subhani, Indian Statistical Institute, Hyderabad
- Dr. Boby John, Indian Statistical Institute, Bangalore
  (M) 94487 04182 email: boby@isibang.ac.in
- Industry Experts

PARTICIPATION FEE

For the whole Training Program (20 Half days): Rs. 40,000 + Rs. 7,200 (GST) =Rs. 47,200

However, a Participant can choose any one of the following options too:

Program	*Participation Fee*	*Fee plus GST*
INTEGRATED MANAGEMENT SYSTEMS (8 Half days)	***16,000***	***18,880***
SIX SIGMA GREEN BELT (10 Half days)	***20,000***	***23,600***
BUSINESS ANALYTICS (8 Half days)	***16,000***	***18,880***
IMS + SIX SIGMA GREEN BELT	***24,500***	***28,910***
IMS + BUSINESS ANALYTICS	***21,000***	***24,780***
SIX SIGMA GREEN BELT + BUSINESS ANALYTICS	***24,500***	***28,910***

Payment Options:

i) Online Transfer: Canara Bank, J S N Colony Branch, Habsiguda, Hyderabad.
Name of Account holder: Indian Statistical Institute, Current A/c No : 30451010000079,
IFSC Code : CNRB0013045

ii) Demand Draft drawn in favour of INDIAN STATISTICAL INSTITUTE payable at Hyderabad.

LAST DATE

Last date for submission of Registration form: 25th June 2025 (date extended on participants' request)

Program Director:

Dr. S M Subhani
Sr. Specialist SQC&OR, Consultant & Trainer
Six Sigma, Data Analytics, ISO 9000, ISO 14001, ISO 45001
Mobile: 98493 23071

Program Facilitator:

K Venkata Ramana
Mobile: 98492 95892

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Registration Form

1. Programs applied for: IMS ☐ SSGB ☐ BA ☐
2. Organization (*Optional*):
3. Name of the Participant:
4. Mailing Address:
5. e-mail :
6. Gender:
7. Age:
8. Phone:
9. Qualification:
10. Nationality:

Payment Details	
Amount (Rs.)	
Transaction Number	
Bank / Branch Name	
Date	
Additional Information (if any)	

Application forms will not be accepted without payment of Participation Fee.

Name: Date:

Registration form should be filled & submitted by clicking the following link:

https://forms.gle/e5tCPc3YN5Y2PsZT9

Terms and Conditions

1. Program Dates:
2. Duration: As per the brochure
3. Course fee per person: Applicable Participation Fee + GST

4. **Online fund transfer details**
   a. Name : **Indian Statistical Institute**
   b. Bank : **Canara Bank**
   c. Account No. : **30451010000079**
   d. IFSC Code : **CNRB0013045**
   e. Type of Account : **Current Account**

   Note: Please mention the participant's name and program(s) names in the Remarks column while making the online transfer of the course fee

5. **Tax-related Information:**
   a) Taxpayer Trade Name : Indian Statistical Institute
   b) Taxpayer Legal Name : Indian Statistical Institute
   c) Income Tax Permanent A/c No. : AAAAI0345R
   d) Provisional GST ID No. : 36 AAAAI0345R1ZG
   e) SAC Code : 998393
   f) Category : Scientific & Technical Consultancy Services

6. No refund of the course fee will be entertained after the commencement of the program.

7. Participation is confirmed after receipt of
   a) Filled in application form
   b) Course fee in full (DD or Online transfer)

8. ISI will provide a receipt for the payment received after the start of the course. The same is to be used as proof of payment. ISI accounting system does not entertain any other form of documentation.

9. An online examination will be conducted at the end of the course and Successful candidates will be issued the following applicable Certificate(s).

   a) Integrated Management System (ISO 9001 / ISO 14001 / ISO 45001)
   b) Six Sigma Green Belt
   c) Business Analytics

10. Any participant who has applied for the program is understood to have gone through and accepted these terms and conditions.