Indian Statistical Institute

SQC & OR Unit, Hyderabad

Announces an Online

Certification Program on

Six Sigma Black Belt
with Business Analytics

March and April 2025 (Online)

Program Schedule (Online)
Program will start on 1st March 2025 (Saturday)
Saturdays & Sundays   : 0900 to 1330
Total Duration   : 80 hours(approximately)

Program Facilitator   : K Venkat Ramana
Program Director & Faculty   : G Murali Rao

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Introduction

Indian Statistical Institute, Hyderabad announces an **Online Certification** program on "Six Sigma Black Belt with Business Analytics" to enable the Six Sigma Green Belts/professionals to acquire the present day Business Analytics/Data Science skills along with the advanced DMAIC methodology/tools & techniques to excel in their professional career. The Online certification program is planned during March-April 2025 on weekends.

Six Sigma and Business Analytics

Six Sigma since its inception in late 70's has revolutionized the way business issues/problems are solved and Six Sigma is being widely adopted across all Industries with phenomenal success. It provides a Business Excellence Strategy in which the business requirements/problems are addressed right from the concept to implementation adopting DMAIC approach using statistical/management tools and techniques in a scientific and systemic manner. During the last decade Business Analytics/Data Science has brought in a paradigm shift in the way the business issues/problems are being addressed with the help of Machine Learning/AI Algorithms and efficient computing platforms such as Python using large volumes of product/process data. Six Sigma as a Structured Business Excellence Methodology along with BA/DS/ML/AI as powerful tools has the potential to provide faster optimum solutions in a process focused and structured manner. Organizations have started deploying Six Sigma along with Business Analytics to take the advantage of both the initiatives. The two approaches complement each other and provide more comprehensive robust solutions to business.

Six Sigma Black Belt (SSBB) with Business Analytics

Business Analytics/Data Science/Machine Learning/AI skills have becoming essential requirement for an individual working in any organisation. Six Sigma Black Belts (SSBBs) are developed/skilled through a structured training in the DMAIC methodology and statistical tools and techniques from a practical and application prospective. Black Belts acquiring Business Analytics/Data Science skills along with the six sigma skills can play the catalytic role and can bring in a paradigm shift in the way the business issues/problems are addressed by using advanced Business Analytics techniques along with the Six Sigma Tools & Techniques to solve complex problems. The powerful ML/AI algorithms adopted in a Six Sigma deployment can help in building efficient predictive models. In the present day it is becoming inevitable for a Black Belt to acquire Business Analytics/Data Science skills.

Eligibility Criteria

Degree/Diploma in any discipline. Certified Six Sigma Green Belts/Experienced Professionals will be given preference.

Course Curriculum, Duration and Methodology

The curriculum of this online certification program on Six Sigma Black Belt with Business Analytics is meticulously designed to enable participants to further their learning in Six Sigma DMAIC methodology/tools & techniques develop proficiency in Business Analytics/Data Science skills to handle big/multi-dimensional data by understanding, cleaning, visualizing, exploring and building predictive models.

The whole program is designed under **FOUR** fundamental skill/knowledge dissemination modes. **1. Online Class Room Teaching 2. Online Hands-on Sessions 3. Assignments/Quizzes and 4. Project/Dissertation work**. Datasets/Case Studies/Published Papers will be used for the Hands-on Sessions/assignments. Statistical/Analytics Software such as Minitab, Orange and Python will be used during the program. The participants interested to join the program are expected to have workable proficiency in Minitab & Python and are expected to do self-learning during the program.

Faculty :

Highly experienced faculty of the Institute and guest/invited speakers from industry with expertise in Six Sigma and Business Analytics/Data Science.

Schedule :

Total duration of the program will be approximately 80 hours spread over two months (March & April 2025). The program will be offered online during weekends (Saturdays & Sundays 4.5 hours per day 9.00 AM to 1.30 PM). The program will start from 1st March 2025 (Saturday) with the Introductory Session at 9.00 AM.

Certification Criteria

- Fully attending all the sessions of the course online.
- Submitting all the assignments on time
- Submitting a Six Sigma/Business Analytics/Data Science Project/Dissertation work
- Securing at least 70% Marks in the Overall Assessment (Periodic Evaluations/Quizzes/Assignments/Final Exam./Project/Dissertation work).

Program Fee :Rs 30,000/- (per participant)

In addition, applicable GST as stipulated by Govt. of India (Presently 18%) to be paid on the Program fee. (Rs 35,400/- with GST)

Application Procedure

Interested candidates may fill the application form online using the following link or can send their details by mail (isihydssbb@isihyd.ac.in).
Link : **https://forms.gle/nQNdpLpeuXwZCszV9**

Registration Procedure

Eligible/Selected/Shortlisted candidates will be intimated for registering to the program by completing a registration process and payment of the fee. The registration will be on a first come first served basis.

For any further details Contact / Mail : **(040) 27153984 / 27171906 : isihydssbb@isihyd.ac.in**

Six Sigma Black Belt with Business Analytics Curriculum

Six Sigma DMAIC	Business Analytics / Data Science
- An Introduction to Quality/Six Sigma / Business Excellence - Six Sigma Architecture and DMAIC Methodology - Define Phase : - Voice of Customer (VOC), Kana Analysis & QFD - Critical to Quality Characteristics (CTQ) and Big Y - Process Mapping (SIPOC) and Project Charter Development - Measure Phase : - Understanding Data and its precautions/processing - Descriptive Statistics, Probability & Probability Distributions - Performance Evaluation - MSA, Stability & Capability, Sigma Level etc - Analyze Phase : - Benchmarking and Gap Analysis - Detailed Process and Root Cause Analysis. Problem Solving Techniques - Root Causes Validations - Inferential Statistics - Improve Phase : - Establishing Variable (Root Cause) Relationships, Regression Modelling - Solution Generations – Desing of Experiments - Finding the optimal solution and validation - Control Phase : - Evaluation of the Improved Process - Developing Control Plans – Full Proof and Process Control Systems - Implementation of Controls and achieving Sustenance	- An Introduction to Business Analytics / Data Science / Machine Learning / Artificial Intelligence - An Introduction to open-source programming tools (Python/R Programming) for Analytics - Understanding multi-dimensional large volumes of data/big data. - Data Preparation / Data Cleaning Methodologies - Data Visualization – Understanding the underlying behaviour and interpretation through graphs and charts. - Exploration of data using statistical methods – Data Mining - Describing data and deriving meaningful information – Descriptive Analytics. - Postulating existing/new theories and validation for drawing significant inference on the theories. - Introduction to Machine Learning and Statistical Modelling - Supervised Learning Methods – Machine Learning Algorithms - Understanding Classification and Regression Methods/Models - Ordinary Least Square (OLS) Methods/Models - Model Diagnostics, Feature Engineering, Resampling Methods etc. - Logistic, Discernment, KNN Methods/Models - Tree Based Methods/Models – Decision Trees - Ensembled Methods/Models – Random Forest, Bagging, Boosting. - Text Mining, NLP, Sentiment Analysis etc. - Association Rules and Market Basket Analysis. - Time Series & Forecasting Models - Unsupervised Learning Methods - Clustering Methods - Principal Component Analysis - Discriminant Analysis - Artificial Intelligence (introductory) - Deep Learning Algorithms – Neural Networks etc. - Generative AI/LLM Algorithms.