



**IIT (ISM)
DHANBAD**
1926-2026

Department of
Mathematics & Computing
IIT (ISM) Dhanbad

Legacy that Inspires the Future
भारतीय प्रौद्योगिकी संस्थान
भारतीय खनि विद्यापीठ
धनबाद



IIT INDIAN INSTITUTE
OF TECHNOLOGY
INDIAN SCHOOL OF MINES
ISM DHANBAD

SHORT TERM TRAINING PROGRAM ON SIX SIGMA GREEN-BELTS

LET'S MAKE TOMORROW BETTER.

Table of Contents

1	ABOUT THE DEPARTMENT.....	ERROR! BOOKMARK NOT DEFINED.
2	ABOUT THE INSTITUTE	3
3	SIX SIGMA & ITS' BENEFITS.....	3
4	TARGET PARTICIPANTS	4
5	DURATION/ PROGRAMME/ COURSE	4
6	METHODOLOGY	4
7	ORGANIZED BY	4
8	COURSE COORDINATOR.....	4
	8.1 Course Co – Coordinator.....	4
9	VENUE.....	4
10	DURATION AND DATE.....	5
11	COURSE CONTENT OF THE TRAINING.....	5
12	COURSE FEE.....	5
	11.1 Terms & Conditions	5
	11.2 Company Account Details.....	5
	11.3 Inclusions and Exclusions.....	5
13	TAG 1: PROPOSED COURSE CONTENT OF THE TRAINING	6
	12.1 Concept of the Short Course.....	6
	1.2 Structure of the Short Course	6

Short Term Training Program
On
Six Sigma Green-Belts
Organized by
Department of Mathematics & Computing
IIT(ISM), Dhanbad

1 ABOUT THE DEPARTMENT

The Department of Mathematics & Computing is a highly reputed Department which functions with excellence as its motto. The Department was started in the year 1926 along with other Engineering and Science Departments of the institute and has established itself as a dynamic centre for academic and research activities. The Department offers one B.Tech program in Mathematics & Computing and P.G. Programs like: M.Sc (Mathematics & Computing) and 5 Yr. Int. M.Tech (Mathematics and Computing), M. Tech (Data Analytics). The faculty is actively engaged in research in diverse fields of Pure & Applied Mathematics, Statistics and Operation Research, Theoretical Computer Science. At present, there are 32 members in the Department and more than 100 Research Scholars are working for their Ph.D.

2 ABOUT THE INSTITUTE

<https://www.iitism.ac.in/>

3 SIX SIGMA & ITS' BENEFITS

Six Sigma model was proposed in 1980s by a scientist at Motorola. It is a methodology that helps in improving business process using statistical analysis. It is a disciplined data driven approach used in project management to improve process and minimize the error. Objective of Six Sigma to achieve a level of quality by eliminating the defects and get as close to as "Zero defect", i.e., when long-term defect levels are below 3 to 4 defects per million opportunities. The five phases of Six Sigma are: defining, measuring, analyzing, improving, and controlling (DMAIC). Benefits of Six Sigma are: Reduced defects and errors, Increased efficiency and productivity, Improved customer satisfaction, Cost savings, Enhanced employee morale. Six Sigma certificates are offered in different belt level like: Yellow Belt, Green Belt, Black Belt and Master Black Belt.

4 TARGET PARTICIPANTS

This course is specifically designed for:

- a. Top Executive, Middle Management, Engineers, Entrepreneurs and Transactional process leaders of any discipline from any type of industry. Six Sigma can be applied effectively in any kind of product or service-based industry.
- b. Administrators in Government bodies who deals with mining industries for operations, regulations and process information.
- c. Scientist/Research Scholars.

5 DURATION/PROGRAMME/COURSE

01 week as encapsulated below:

#	Description	Item
1	Days of training at IIT(ISM) Dhanbad, India	5 days
2	Training delivery hours	30 hours [(5 days) x 6 hours/day]

6 METHODOLOGY

The program's activities will not consist only of lectures delivered in classrooms. The courses will be activity-based and problem-solving (case studies) oriented, *overall, the course program will consist of lectures/tutorials/discussions/practicals.*

Six Sigma Green-belt Certificate will be issued after successfully passing with $\geq 60\%$ marks in the test conducted on the last day and having submitted the project consolidation or summary report and an online evaluation of the project percipients will receive Six Sigma Green-Belt Training Session Completion certificate.

• Facilitators

The sessions will be facilitated by Professors of IIT(ISM) Dhanbad, ISI Pune & ISI Kolkata.

7 ORGANIZED BY

Department of Mathematics & Computing, IIT(ISM) Dhanbad.

8 COURSE COORDINATOR

Prof. Subhashis Chatterjee,
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Jharkhand - 826004
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8.1 Course Co-Coordinator

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9 VENUE

EDC Class Room, IIT(ISM) Dhanbad, Jharkhand, 826004.

10 DURATION & DATE

Monday – Friday starting from 23.06.2025.

11 COURSE CONTENT OF THE TRAINING

Progressively, aggressively and incessantly keep on reducing variability to reach to defect level below 3.4 ppm- is what Six Sigma means in technical term. In broader context, Six Sigma calls for addressing overall sensitivity to all the stakeholders and thereby making an Organisation realize- “sustainable, predictable and desirable growth in profit following the laws of the lands”.

Six Sigma Green Belts is typically a 5-day program. The participants will complete one Six Sigma project after the training and will acquire transferable problem-solving skills and competence to solve and guide many problems in the forthcoming years for their organization. Six Sigma is a fact-based data driven structured methodology that is used to create breakthrough improvements in business processes. It is used to solve organizational problems where the solution is not known. The program augments the participants existing domain knowledge and expertise with statistical thinking and application. This will help them to channelize their efforts and knowledge in the right direction and achieve groundbreaking results in their field.

12 COURSE FEE

The course fee for conducting the above training program is as follows:

For participants from Industries/Corporate house/R&D Organization is Rs. 20,000 per participant (GST @ 18% Exclusive and cess, any additional taxes if any, which has to be paid separately).

For faculties Rs. 10,000/- per participants (GST @ 18% Exclusive and cess, any additional taxes if any, which has to be paid separately)

For Research Scholars 7000/- per participants (GST @ 18% Exclusive and cess, any additional taxes if any, which has to be paid separately)

12.1 Terms & Conditions

- All documents shall be sent to the participants as a pdf file through email.

12.2 Company Account Details

Name of Bank- Canara Bank

Account Name- IIT(ISM) SPECIAL Fund Account

Number- 0986101024892

IFSC Code- CNRB0000986

12.3 Inclusions and Exclusions

- ▶ At IIT(ISM) Dhanbad:

- **Includes:**

- Includes course material, breakfast, lunch and dinner in Executive Development Centre/Senior Academic Hostel at IIT (ISM).

- **Exclusions:**

- The fee does not include applicable GST (@18 %) and cess, any additional taxes if any, which has to be paid separately.

- The fee does not include accommodation charges. Accommodation in Guest house of IIT(ISM) will be provided on request basis @ Rs.1200/- plus applicable GST per day.

13 TAG 1: PROPOSED COURSE CONTENT OF THE TRAINING

Concept of the Short Course

The courses provide a holistic view and detailed aspects of Six Sigma and how it can be implanted in respective industries. At the same time, it shall also cover personal effectiveness skills which is instrumental in success of any organization.

By the end of the workshop, participants will:

- Understand the fundamentals Six Sigma.
- Gain hands-on experience with tools.
- Case studies related to application of Six Sigma Green Belts application.
- Earn a certificate to validate their skills.

This workshop empowers you to leverage Six Sigma effectively in your field!

Structure of the Short Course

The programs will be based on the needs and level of expertise of the executives.

Course Content Phase	Content
Recognize & Define	Deployment of Six sigma in organization, Organization hierarchy for Six Sigma, Project Hopper, Project Charter, Voice of Customer, Critical to Quality, Tree Diagram, Pareto, SIPOC
Measure	Type of Data, Measurement System Analysis– Variable & Attribute, Sampling, Base level Assessment, Normality tests, Capability analysis – Cp, Cpk, Pp, Ppk, DPMO, DPO, DPU, Sigma Level
Analysis	Process Analysis, Problem Analysis, Control Charts, Test of Hypothesis, Chi – Square test, Regression Analysis, Process FMEA, Root cause identification
Improve	Solution Prioritization matrix, Solution Matrix, RICI – Chart, Before After tests, Solution Implementation
Control	Control Plan, Control Charts for Online Analysis, Mistake Proofing, Kaizen Philosophy, Overall Review, Evaluation Test.

*****END*****