



International Management Research
and Technology Consortium – LLC - USA

AI CLSSBB

AI POWERED

CERTIFIED LEAN SIX

SIGMA BLACK BELT



www.imrtc.org



consortium@imrtc.org

Bridging The Gap Between
Academia and The Industry
Worldwide!

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IMRTC

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A grayscale image of a city skyline, featuring several tall buildings and skyscrapers, including the Transamerica Pyramid. The image is used as a background for the 'JOIN NOW' button.

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AI-CERTIFIED LEAN SIX SIGMA BLACK BELT (AI-CLSSBB)

INTRODUCTION

There is a growing global demand for qualified Six Sigma professionals, especially Quality, Assurance, production, Packaging managers, who possess strong expertise in Lean processes, business process optimization, and business process re-engineering methodologies.

Recognizing this need, IMRTC, as an established and reputable consortium, has developed a comprehensive curriculum that integrates Lean Six Sigma Black Belt principles with emerging **Artificial Intelligence (AI) technologies**.

Through extensive consultation with senior members, industry executives, and expert consultants, IMRTC has introduced an advanced certification program:

ABOUT AI-CLSSBB

The **AI-Lean Six Sigma Black Belt (AI-CLSSBB)** certification is designed to develop advanced expertise and practical skills for professionals in **Quality, Production, Operations, and Service** sectors. The primary objective of this program is to empower management teams to enhance organizational productivity by reducing costs, optimizing processes, and integrating the latest **Artificial Intelligence (AI)** technologies to achieve higher efficiency and effectiveness.

The **AI-CLSSBB** curriculum covers a wide range of critical areas, including:

- ✓ Quality Cycle Management
- ✓ Lean Management Principles
- ✓ Qualitative and Quantitative Process Assessment
- ✓ Strategic Operational Management
- ✓ Technology-enabled business optimization using ERP and CRM systems

The program follows a structured, systematic learning format supported by practical, real-world applications. Participants benefit from:

- ✓ Hands-on exercises
- ✓ Quizzes and interactive learning
- ✓ Audio-visual learning aids
- ✓ Case studies and real industry scenarios
- ✓ Practice sessions
- ✓ Guided project development

This certification equips professionals with the essential tools and AI-enhanced methodologies required to drive continuous improvement and operational excellence within modern organizations.



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AUDIENCE

This program is ideal for professionals from Quality, Production, Manufacturing, and Service industries who wish to enhance their expertise with globally recognized Lean Six Sigma and AI-driven process optimization skills.

It is especially suitable for:

- ✓ Managers
- ✓ Executives and Executive Assistants
- ✓ Supervisors
- ✓ Team Leads

Professionals involved directly or indirectly in process improvement, operations, or service delivery. Anyone seeking to strengthen their professional qualifications and contribute to organizational excellence can greatly benefit from the **AI-CLSSBB** certification.



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AI CERTIFIED LEAN SIX SIGMA BLACK BELT (AI-CLSSBB)



THE CREDENTIALS

Candidates seeking the **AI-Certified Lean Six Sigma Black Belt (AI-CLSSBB)** qualification must complete 48 Professional Training Hours (PTH) from a recognized institute with IMRTC-approved professional trainers. In addition to training, candidates are required to complete a self-developed project based on real organizational scenarios. This project should demonstrate the candidate's ability to identify challenges, apply Six Sigma methodologies, and integrate AI-enhanced techniques, and present measurable improvements in organizational productivity.

The project must be submitted in soft copy to the designated IMRTC training partner or chapter for review. Upon successful project approval, the candidate becomes eligible to sit for the IMRTC final examination. After passing the examination, candidates are officially authorized to use the credential: "**AI CERTIFIED LEAN SIX SIGMA BLACK BELT – AI-CLSSBB**" with their name.

PRE-REQUISITE:

A Bachelor's degree, or a high school professional diploma, associate degree, or the global equivalent 2–3 years of professional experience in Quality, Manufacturing, or any Service Industry

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AI – CERTIFIED LEAN SIX SIGMA BLACK BELT (CLSSBB)



PROFESSIONAL BENEFITS OF PROGRAM

The **AI-Certified Lean Six Sigma Black Belt (AI-CLSSBB)** is a highly valuable credential that validates your expertise in process improvement, waste reduction, quality enhancement, and AI-driven operational excellence. Earning this certification provides a wide range of career and professional benefits:

1. Career Advancement

- ✓ The AI-CLSSBB certification strengthens your professional profile, making you a competitive candidate for senior, managerial, and leadership roles across industries.
- ✓ Organizations highly value professionals capable of driving process improvements, solving complex problems, and managing cross-functional teams.

2. Increased Earning Potential

- ✓ Certified professionals typically structure their Belts and are trained to lead improvement initiatives, mentor teams, and drive organizational change.
- ✓ The certification builds strong leadership, communication, and decision-making capabilities essential for project and change management Expanded Career Opportunities
 - Industries such as manufacturing, healthcare, IT, finance, logistics, and consulting frequently seek Lean Six Sigma Black Belts.
 - The certification demonstrates versatility and relevance across sectors.

3. Leadership Skills

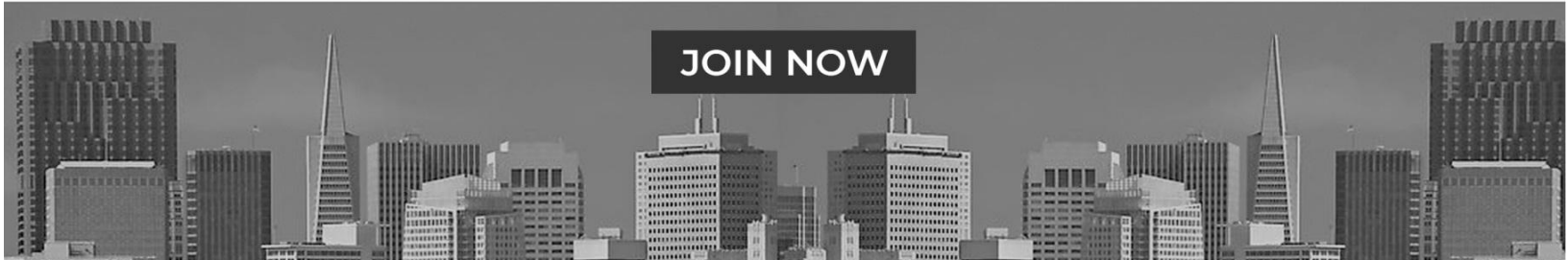
- Black Belts are trained to lead and mentor teams, fostering leadership qualities essential for project and change management.

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PROGRAM STRUCTURE

Total Domains	10
Lectures	Lectures can be delivered through partners and trainers
Accredited Trainers	Can Deliver the lectures
One Credit Hour	10 Learning Hours
Total Credits Required	4.8 Credit Hours
Registration Process	Register through our partners / Trainer
Assessment	Online / Paper based
Passing Criteria	70 percent



PROGRESSION OF THE PROGRAM

Total Credentials	=	4.8 Credit Hours
One Credit Hour	=	10 Learning hours
Final Assessment	=	Online or physical assessment shall be taken by IMRTC Examination Department

AWARDING OF AI-CLSSBB CERTIFICATION

Candidates who achieve a minimum score of **70%** in the examination will be awarded the AI-Certified Lean Six Sigma Black Belt (AI-CLSSBB) certification, issued by IMRTC, USA. This globally recognized credential validates the candidate's competency in Lean Six Sigma methodologies enhanced with AI-driven techniques.



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COURSE CONTENTS

Certified Lean Six Sigma Black Belt Covers theory, process and practices of Lean and Six sigma skills.

DOMAIN 1: Enterprise-Wide Deployment

DOMAIN 2: Define Phase

DOMAIN 3: Measure Phase

DOMAIN 4: Analyze Phase

DOMAIN 5: Improve Phase

DOMAIN 6: Control Phase

DOMAIN 7: Lean Tools and Concepts

DOMAIN 8: Leadership and Team Management

DOMAIN 9: Advanced Statistics and Analytical Tools

DOMAIN 10: Certification Project



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DOMAINS AND TASKS

In this document, you will find an updated structure for the IMRTC Standard Examination Content. Based on Experience Consultants and stakeholders, we have devised and simplified the format so that the IMRTC Examination System can be easier to understand and interpret.

The domain and task are well-defined on the following pages:

Domain: Defined as the high-level knowledge area that is essential to the practice of AI-CLSSBB.

Tasks: The underlying responsibilities of the Quality Consultants within each domain area.

AI-CLSSBB Course examination will include all tasks for a domain and will adhere to the percentage of coverage at the domain level as outlined in the further pages.

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KNOWLEDGE AREAS

Domain 1: ENTERPRISE WIDE DEPLOYMENT	
Task 1	<p>Understanding Lean Six Sigma principles and concepts.</p> <p>Understanding of Lean and its importance</p>
Task 2	<p>Strategic alignment of Lean Six Sigma with organizational goals.</p> <p>Planning and Methodology</p>
Task 3	<p>Roles and responsibilities in a Lean Six Sigma environment (e.g., Champions, Black Belts).</p> <p>Understanding of Cultural Environments</p>
Task 4	<p>Organizational leadership and culture for Lean Six Sigma deployment</p> <p>Developing Leadership Quality and its systems</p>
Task 5	<p>Understanding of AI with fundamentals</p> <p>Understanding of Microsoft Co-Pilot or ChatGPT, Perplexity that how to use them with the strategic alignment of the organization</p> <p>Find & develop the appropriate organogram and set the enterprise resources.</p>



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KNOWLEDGE AREAS

Domain 2: DEFINE PHASE	
Task 1	<p>Project Identification and Selection</p> <p>Identifying improvement opportunities aligned with business objectives. Defining the scope and goals of the project.</p>
Task 2	<p>Voice of the Customer (VoC)</p> <p>Gathering and translating customer requirements into measurable objectives.</p>
Task 3	<p>Project Charter Development</p> <p>Documenting project objectives, scope, team members, and milestones.</p> <p>Stakeholder Analysis</p> <p>Identifying and managing stakeholders to ensure project success.</p> <p>Deploy NLP-based sentiment analysis to gauge employee readiness for cultural change.</p> <p>AI-generated change readiness reports for leadership before deployment.</p>
Task 4	<p>Apply AI-powered Voice of Customer (VoC) tools to analyze large volumes of customer feedback (emails, chats, social media) for pain points.</p> <p>Use Generative AI to auto-create project charters based on initial project briefings.</p> <p>Automate stakeholder mapping with AI network analysis of communication data.</p>



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KNOWLEDGE AREAS

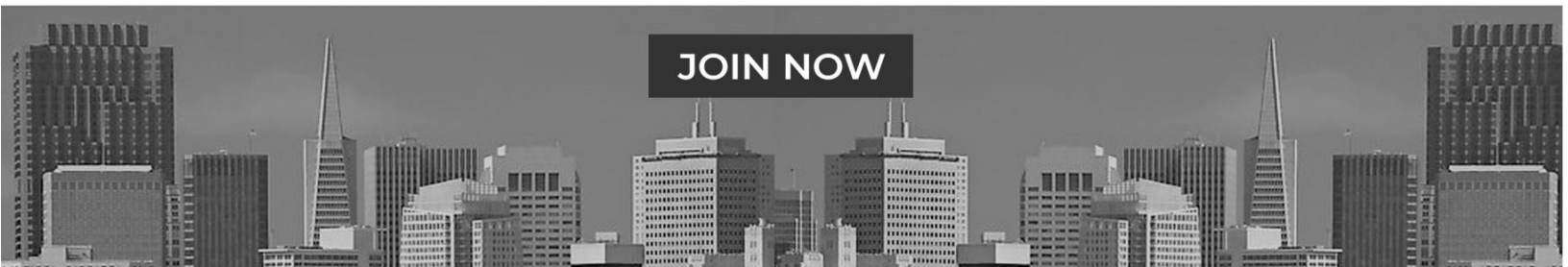
Domain 3: MEASURE PHASE	
Task 1	Process Mapping and Documentation Creating detailed process maps (e.g., SIPOC, value stream mapping).
Task 2	Data Collection and Sampling Designing data collection plans. Sampling techniques to ensure data reliability
Task 3	Measurement System Analysis (MSA) Evaluating the accuracy and precision of measurement systems.
Task 4	Descriptive Statistics Understanding central tendency, dispersion, and data distribution.
Task 4	Baseline Performance Metrics Calculating process capability indices (Cp, Cpk, Pp, Ppk).
Task 5	Integrate AI-based process mining software to automatically generate process maps from system logs. For Example; (Celonis, UiPath for Process Mining etc) Use AI anomaly detection to identify data irregularities.



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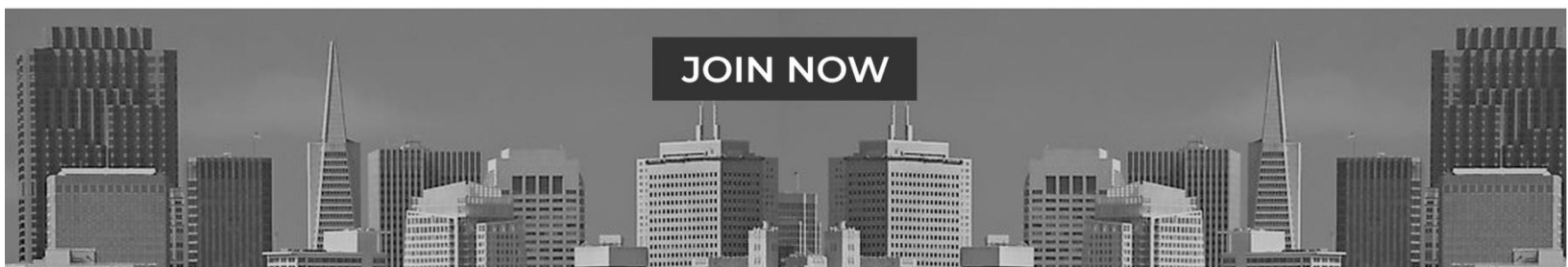
KNOWLEDGE AREAS

Domain 4: ANALYZE PHASE	
Task 1	Data Analysis Tools Hypothesis testing (e.g., t-tests, ANOVA, Chi-square tests). Correlation and regression analysis.
Task 2	Root Cause Analysis (RCA) Using tools like Fishbone diagrams, Pareto charts, and 5 Whys
Task 3	Failure Mode and Effects Analysis (FMEA) Identifying potential risks and their impact on the process.
Task 4	Process Variability Analysis Analyzing sources of variation in the process.
Task 5	Implement machine learning predictive models for root cause analysis. Use AI-enhanced FMEA tools to calculate risk priority numbers dynamically based on live process data. Task Example: AI clusters variation sources and suggests priority improvement areas.



KNOWLEDGE AREAS

Domain 5: IMPROVE PHASE	
Task 1	Brainstorming and Solution Development Generating and prioritizing potential solutions.
Task 2	Lean Tools and Techniques Implementing tools like 5S, Kaizen, and Kanban.
Task 3	Design of Experiments (DOE) Conducting experiments to optimize process parameters.
Task 4	Cost-Benefit Analysis Evaluating the feasibility and impact of proposed solutions.
Task 5	Leverage Generative AI for brainstorming solutions by combining industry best practices with internal data. Use AI-based simulation tools to test improvement scenarios before implementation. For Example: Optimize process parameters via AI-driven Design of Experiments simulations



KNOWLEDGE AREAS

Domain 6: CONTROL PHASE	
Task 1	Control Plan Development Documenting steps to sustain improvements.
Task 2	Statistical Process Control (SPC) Using control charts to monitor process performance.
Task 3	Mistake Proofing (Poka-Yoke) Implementing error-proofing techniques.
Task 4	Sustainability Measures Ensuring long-term adoption of improvements.
Task 5	Project Closure and Handover Transitioning ownership to process owners and documenting lessons learned
Task 6	Deploy AI-enabled SPC systems that send real-time alerts when control limits are breached. Use computer vision for mistake-proofing in manufacturing processes. For Example: AI suggests corrective actions automatically when variation trends are detected.



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KNOWLEDGE AREAS

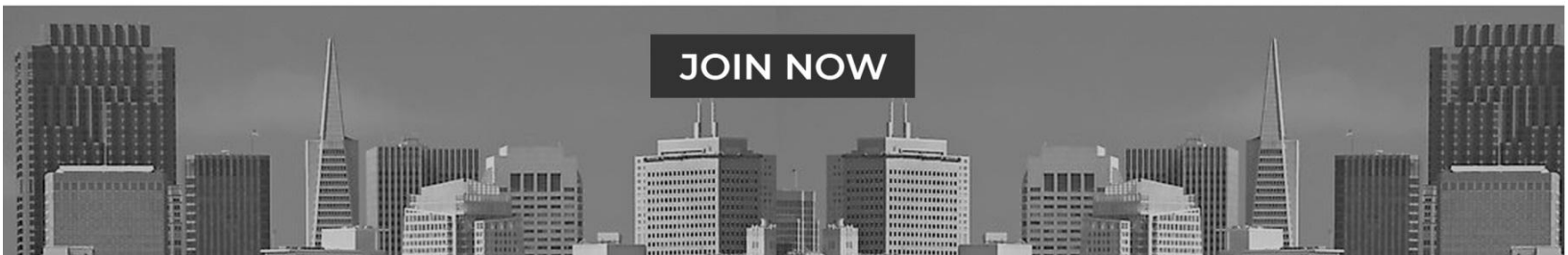
Domain 7: LEAN TOOLS AND CONCEPTS	
Task 1	Waste identification and elimination (e.g., TIMWOOD: Transportation, Inventory, Motion, Waiting, Overproduction, Over processing, Defects).
Task 2	Value Stream Mapping (VSM) for process flow analysis
Task 3	Continuous Flow and Pull Systems
Task 4	<p>Apply AI-assisted Value Stream Mapping tools that recommend waste elimination strategies.</p> <p>Use IoT + AI analytics to track real-time process flows and inventory levels.</p> <p>For Example: Automated TIMWOOD waste detection using AI on operational datasets.</p>



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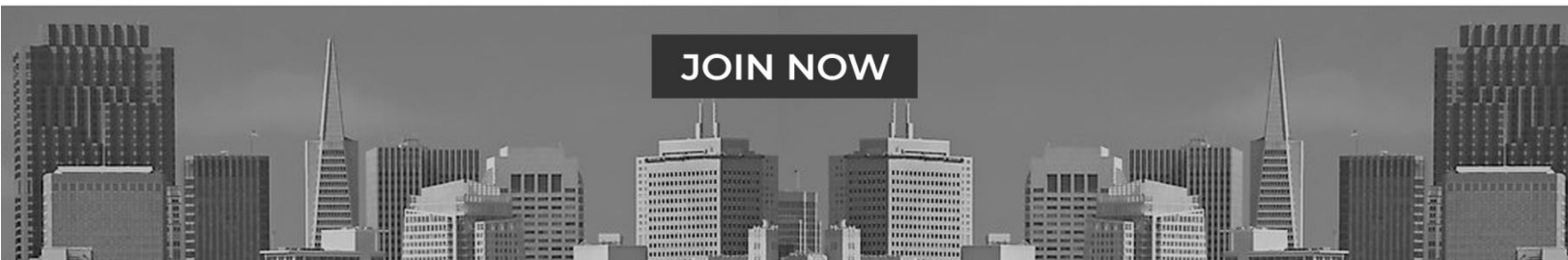
KNOWLEDGE AREAS

Domain 8: LEADERSHIP AND TEAM MANAGEMENT	
Task 1	Effective communication and stakeholder engagement.
Task 2	Managing change and resistance in organizational settings.
Task 3	Coaching and mentoring Black Belts and project team members.
Task 4	Conflict resolution and team dynamic
Task 5	<p>AI-powered collaboration analytics to measure team performance and communication effectiveness.</p> <p>Predictive analytics for identifying potential resistance points in change management.</p> <p>For Example: AI chatbot coach for Black Belts to guide decision-making during projects.</p>



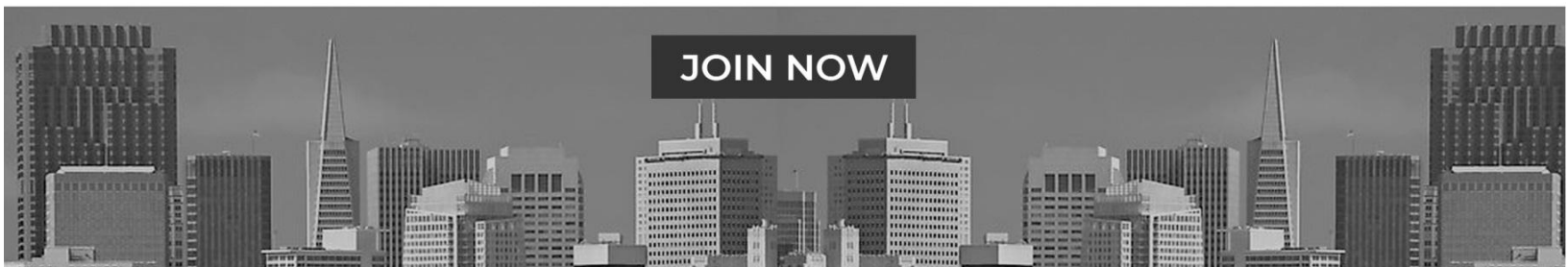
KNOWLEDGE AREAS

Domain 9: ADVANCED STATISTICS AND ANALYTICAL TOOLS	
Task 1	Advanced statistical modeling techniques (e.g, multivariate analysis)
Task 2	Non-parametric tests and reliability analysis.
Task 3	Data visualization and dashboard creation.
Task 4	<p>Use AI data visualization platforms for automated dashboard creation. (for e.g., Tableau with AI, Power BI Copilot)</p> <p>Implement AutoML tools for advanced statistical modeling without manual coding.</p> <p>For Example: AI recommends best-fit statistical models for given datasets</p>



KNOWLEDGE AREAS

Domain 10: CERTIFICATION PROJECT	
Task 1	Candidates must complete a real-world improvement project demonstrating the application of Lean Six Sigma methodologies.
Task 2	<p>Use AI project assistant to track milestones, suggest methods, and analyze interim results.</p> <p>AI-based ROI calculators for measuring the impact of implemented solutions.</p>



ASSESSMENT OF PROGRAM (ONLINE/PHYSICAL)

The examination may be taken online or physically, based on the candidate's preference; however, online examination is highly recommended.

The exam will cover all domains and topics outlined in the curriculum.
The passing score is 70%.

Internal assessment marks may be included in the final score through accredited trainers, subject to prior approval from the

IMRTC EXAMINATION DEPARTMENT

Candidates who do not have access to online facilities may take a paper-based examination. In all other cases, partners are required to arrange proper online examination centers in accordance with IMRTC's examination guidelines.

All assessments will be conducted according to the defined domains and tasks, utilizing IMRTC's standardized online assessment methodology.

EVALUATION AND GRADING

Candidates will be evaluated through examinations conducted by IMRTC LLC, USA.
The total marks for the Certification/Diploma are based on 100 points.

A minimum score of **70 out of 100** is required to successfully pass and qualify for certification.



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AI-CLSSBB ELIGIBILITY REQUIREMENTS

To be eligible for the Certified Lean Six Sigma Black Belt (any level), candidates must possess a Bachelor’s degree or equivalent with a minimum of two years of relevant professional experience in the industry. Candidates are required to submit proof of their credentials, including educational qualifications and professional experience, as part of the application process.

Educational Background	Certification / Diploma
Bachelor degree Passed or Equivalent	Must be earned from any partner/ institute / trainer about 4.8 Credit hours course training
Professional Experience	
Two to three years Minimum Professional Experience Required	



REGISTRATION AND PAYMENT PROCESS

We encourage that registration of the program is to be completed through our registered partners/trainers, and if the partners are not available in your region city or country, then you can directly apply through [professional membership](#) and submit the fee in our bank account directly.

The Bank Details are given below:

- IMRTC, LLC
- LiLi Bank
- Sunrise Banks, N.A
- Member FDIC

Account Details

- Account Number: 692101479081
- Routing Number for ACH: 091017138
- Routing number for Wire Transfer: 121145307
- Swift number for International Wire Transfer: CLN0US66

Once you have paid the amount in the above mentioned bank, so please share the detail with your professional Member ID and attached the slip at email registration@imrtc.org. Once the transaction has been verified, so you will get the receipt and your case will be forwarded to examination department for further actions. On the other hand, if you have further issue, so you may please contact to cell number or email at consortium@imrtc.org.

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IMRTC EXAMINATION SYSTEM

AI CERTIFIED LEAN SIX SIGMA BLACK BELT CERTIFICATION

PARTNER/ INSTITUTE / TRAINER EXAMINATION SYSTEM

The concerned partner/institute/trainer will take exams through paper based or online and submit to the International Management Research and Technology Consortium - USA Examination Department.

IMRTC ONLINE EXAMINATION SYSTEM

IMRTC will provide access to all trainers/partners to schedule the exams of the particular courses of any individual candidates. Therefore, according to the availability, the partner institutes will schedule the exam of individual candidates' subjects or courses/certifications.

IMRTC PAPER BASED EXAMINATION SYSTEM

IMRTC offer the paper based physical attempt exam to registered institutes / partners / trainers. In this case, the registered partners/institutes/ trainers may schedule the exam on their provided portal and schedule the exam, The IMRTC examination department will send the paper to your registered invigilators as per schedule.



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FEES STRUCTURE

AI CERTIFIED LEAN SIX SIGMA BLACK BELT

S. No	Description	Fees
1.	Membership Fee	USD 30
2.	Examination Fee For Members	USD 350
3.	Examination Fee For Non Members	USD 525



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PROCESS OF CERTIFICATION

To obtain the **AI-Certified Lean Six Sigma Black Belt (AI-CLSSBB)** certification, completion of 48 Professional Training Hours (PTH) from an **IMRTC-approved professional trainer or partner/ institute** is mandatory. Participants must submit proof of their completed PTH along with the Examination Application Form, including copies of relevant qualifications, experience certificates, and letters.

The examination consists of 100 multiple-choice questions (MCQs), with a minimum passing score of 70%. If the certification includes a project component, marks will be allocated according to the specific course and certification guidelines.

TERMS & CONDITIONS RELATED TO EXAMINATION AND CERTIFICATION

- ✓ **Validity of Training:** The 48 Professional Training Hours (PTH) are valid for one year from the date of completion.
- ✓ **Re-Attempt on Failure:** If a candidate fails the examination, they are allowed **one additional attempt within the same year**. If the candidate does not pass on the second attempt, they must pay the **examination fee** again to reappear.
- ✓ **Examination after One Year:** Candidates who wish to appear for the examination after one year from their training completion must resubmit the 48 PTH to be eligible.
- ✓ **Online Examination:** The examination is primarily online, and candidates can schedule it at their convenience.
- ✓ **Paper-Based Examination:** In countries or regions where online examination is not available and as per registered partner/trainer/institute will, candidates may take a **paper-based examination**, which should be submitted to the authorized partner, trainer, or examiner. The assessment period will be one month, after which results will be sent to the concerned partner.
- ✓ **Issuance of Certificate:** Candidates will receive their certificate within one month after successfully passing the examination, and the administration will send it to the concerned partner or training center.
- ✓

Annual Membership Renewal: To maintain the value, recognition, and eligibility of the certification in the market, candidates are required to renew their membership bi-annually.

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EXAM CONTENT PERCENTAGE

The table below specifies the **proportion of examination questions** drawn from each section or **Knowledge Area** outlined above.

The examination will include a variety of question formats, including:

- ✓ **Multiple Choice Questions (MCQs)**
- ✓ **Fill-in-the-Blank Questions**
- ✓ **Short Essay / Letter Writing Questions**

This structure ensures a comprehensive assessment of the candidate's knowledge and practical understanding of the AI-CLSSBB curriculum.

CONTENT	DOMAIN WISE PERCENTAGE
DOMAIN I	5%
DOMAIN II	5%
DOMAIN III	5%
DOMAIN IV	5%
DOMAIN V	7%
DOMAIN VI	6%
DOMAIN VII	7%
DOMAIN VIII	7%
DOMAIN IX	8%
DOMAIN X	45%



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