भारतीय प्रौद्योगिकी संस्थान दिल्ली
Indian Institute of Technology Delhi

Batch
06

Architect
Operational Excellence

Executive Programme in

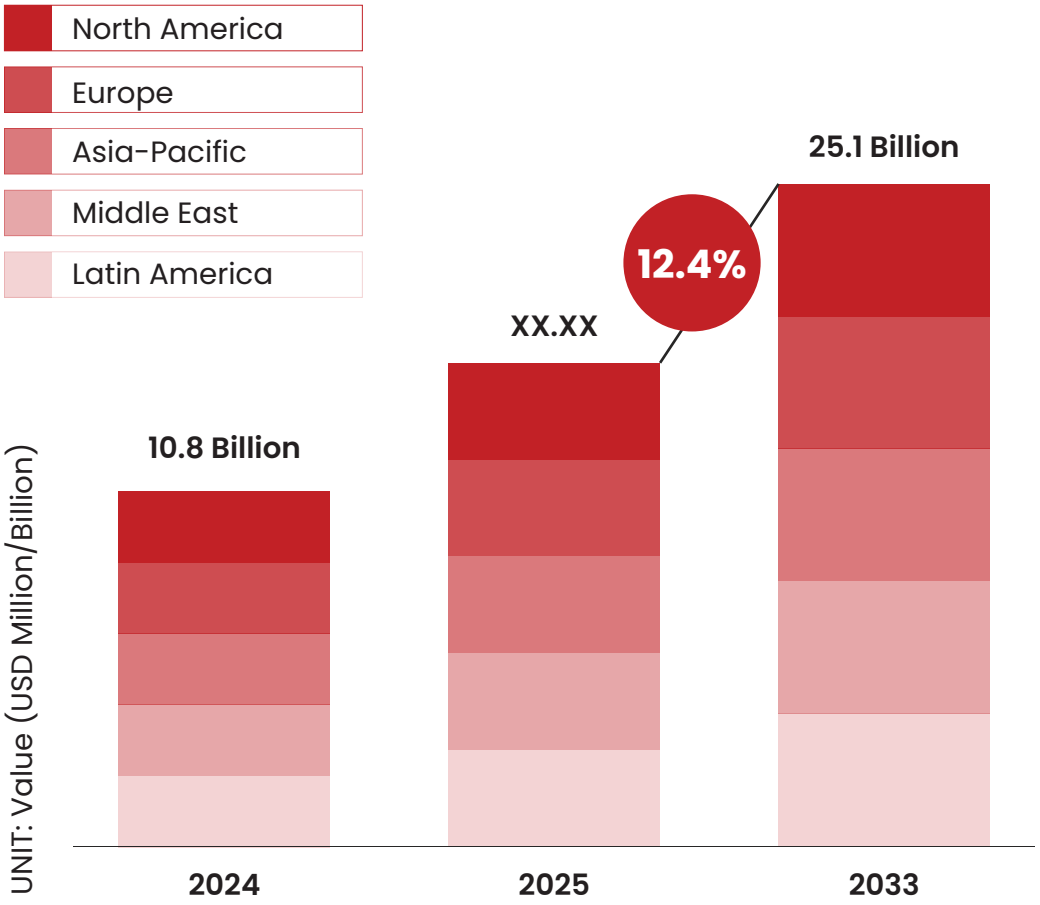
Operations Management and Analytics

Programme offered by Continuing Education Programme (CEP), IIT Delhi

Market Growth & Economic Impact

» Operational Analytics & Manufacturing

Global Operational Analytics Market Size and Scope



VERIFIED MARKET REPORTS

12.4%
CAGR from 2026 to 2033

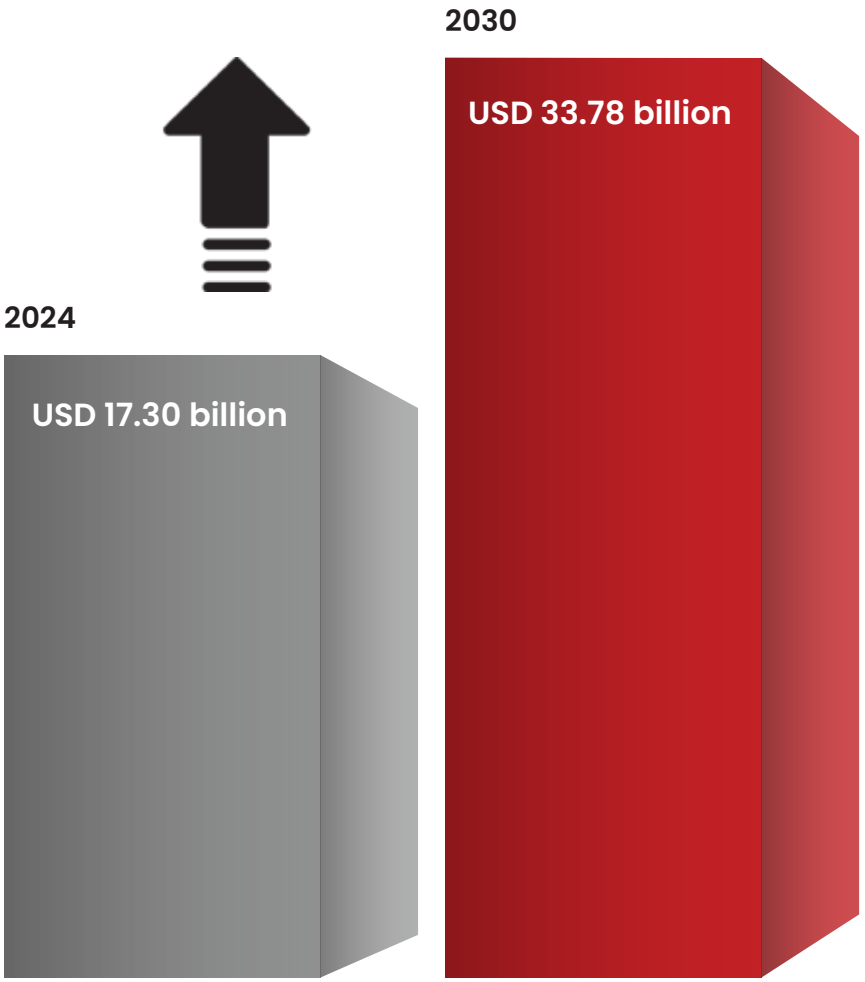
Global Operational Analytics Market size was valued at USD 10.8 billion in 2024 and is projected to reach USD 25.1 billion by 2033

Manufacturing Operations Management Market

360iResearch

The Manufacturing Operations Management Market is projected to grow at a

CAGR 11.79%



India’s Operational & Analytics Opportunity

India is rapidly emerging as a global hub for operational intelligence and analytics. With industry digitization, supply chain modernization, and AI adoption accelerating across sectors, the potential is enormous—and growing.

High-Growth Market Segments

- **US$ 27.0 B by 2033 (CAGR: 27.46%)**
  India data analytics market size reached USD 2.6 B in 2024 and is projected to reach USD 27.0 B by 2033, exhibiting a CAGR of 27.46% during 2025–2033

*imarcgroup.com

Predictive Analytics (India)

- **US$ 6.87 B by 2033 (CAGR: 20.4%)**
  India predictive analytics market size reached USD 1,122.7 M in 2024 … projected to reach USD 6,872.4 M by 2033, exhibiting a growth rate (CAGR) of 20.40% during 2025–2033

*imarcgroup.com

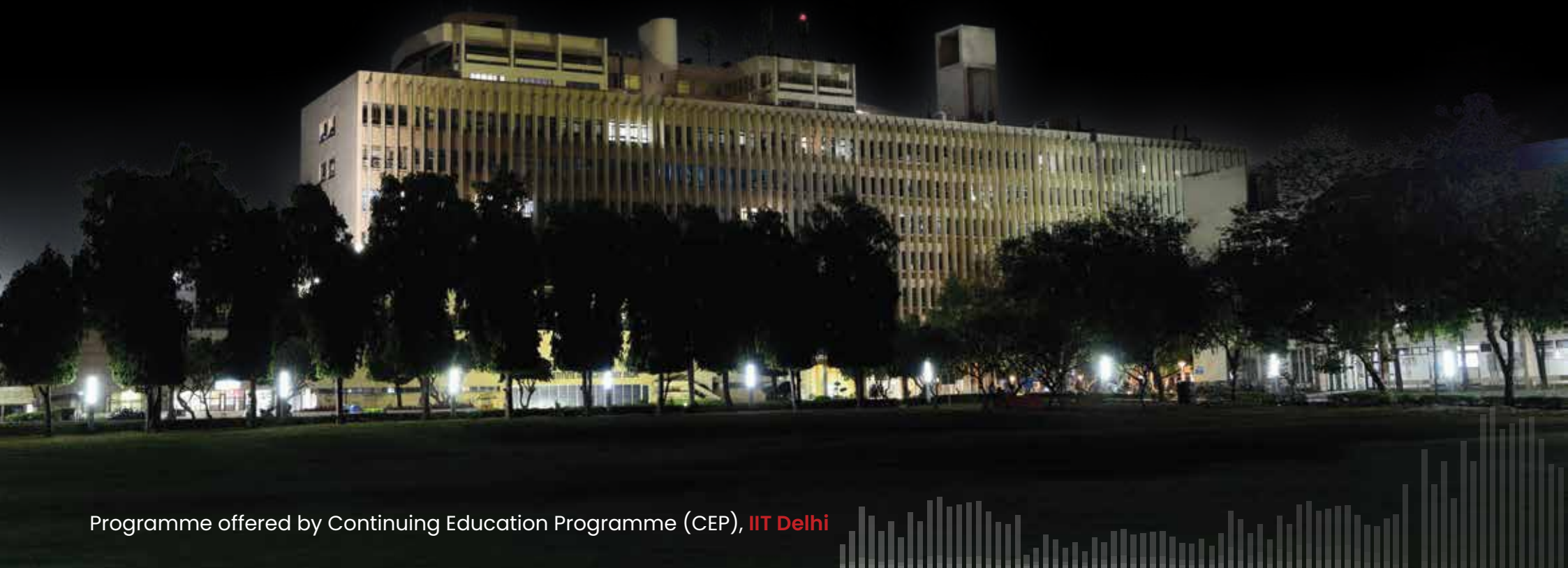
Operations at the Core of Growth

Manufacturing Transformation

With India's rise as a global manufacturing hub, smart operations and data-backed decision-making are no longer optional—they're strategic necessities.

AI & Automation Integration

Sectors like logistics, healthcare, BFSI, and public infrastructure are investing heavily in operational analytics to improve service delivery, reduce inefficiencies, and scale impact.



Career Outlook: Salaries in Operations Management & Analytics

Role	Average Annual Salary (INR)	Top-Tier Salary (Up to)
Data & Analytics Operations Manager	₹6.0 LPA	₹6.9 LPA
Operations & Analytics Manager	₹7.2 LPA	₹28.0 LPA
Operations Manager	₹25.6 LPA (with bonus ~₹28.7 LPA)	₹32.3 LPA
Analytics Manager	₹20.3 LPA	₹30.0 LPA
Business Analytics Manager	₹19.3 LPA	₹33.9 LPA
Director of Operations	₹33.7 LPA	₹60.0 LPA
Head of Operations	₹25.7 LPA (range: ₹5.5 L – ₹48 L)	₹50.0 LPA (typical) ₹2.0 Cr (metro/high-growth sectors)

Sources: AmbitionBox, Payscale, Glassdoor, SalaryExpert (2024–2025 estimates). Salaries may vary by experience, industry, and geography.

Lead the Shift, Drive Operational Excellence

Key Challenge	Way Forward
Fragmented Data Systems	Invest in integrated ERP, cloud platforms, and real-time data pipelines for unified operational visibility.
Low Adoption of Advanced Analytics Tools	Upskill teams in AI, ML, R, Python; incentivise the use of data-driven KPIs; use low-code/no-code analytics tools.
Resistance to Change in Traditional Operations	Leadership advocacy, change management programmes, and showcasing pilot project wins can drive cultural transformation.
Shortage of Skilled Talent in Ops Analytics	Offer targeted skilling programmes in analytics for operations teams; partner with academic institutions like IITs.
Poor Interdepartmental Collaboration	Implement cross-functional teams with shared KPIs; use collaborative analytics dashboards for transparency and alignment.
Lack of Real-Time Decision-Making	Deploy IoT, digital twins, and edge analytics to enable real-time monitoring and proactive intervention.

Outdated Quality and Inventory Practices	Introduce Six Sigma, JIT, lean, and predictive inventory models using AI/ML forecasting tools.
Limited Use of Simulation & Scenario Planning	Adopt simulation tools (e.g., digital twins) to assess scenarios in capacity, layout, and risk planning.
Data Governance and Trust Issues	Build robust data governance frameworks; ensure transparency, accountability, and ole-based access controls.
Inability to Scale Analytics Projects	Start with scalable pilot projects and gradually institutionalize analytics with leadership backing and structured ROI.

Programme Overview

In today's fast-evolving business environment, operational excellence and data-driven decision-making are no longer optional—they're essential. The Executive Programme in Operations Management and Analytics, offered by CEP, IIT Delhi, is designed to empower professionals across industries to optimize business processes, boost efficiency, and lead with precision.

This interdisciplinary programme is ideal for decision-makers, new managers, and experienced professionals—whether from core operations, project management, manufacturing, or even non-operational backgrounds—seeking to build or strengthen their expertise in operations strategy and analytical thinking.

The curriculum blends foundational concepts in operations management with advanced analytics, offering a powerful toolkit for solving real-world business challenges. Participants will explore critical areas such as supply chain optimization, quality control, Six Sigma, capacity planning, and emerging technologies like AI, IoT, and Digital Twins. Learning is delivered through live online sessions, self-paced modules, and business school-style case studies for maximum relevance and impact.

By the end of the programme, participants will be equipped to transform operations using data insights, reengineer workflows, reduce inefficiencies, and make strategic, scalable decisions in dynamic business contexts.

With the academic rigour and reputation of IIT Delhi, this programme is a unique opportunity to gain future-ready skills and drive operational leadership in the era of Industry 4.0 and beyond.

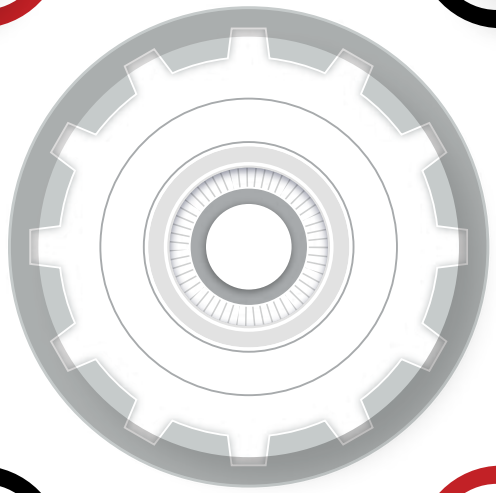
Programme Highlights

01 Certificate of Successful Completion from CEP, IIT Delhi

02 Explore real-world case studies/caselets

03 Peer-to-peer learning and expand your professional network

04 Learn the role of Analytics in Operations Management - core Industry Operations



05 Experience high-impact live online learning

06 Gain industry-oriented insights from eminent IIT Delhi faculty members

07 Rigorous,curriculum developed in collaboration with IITD's faculty

08 Twelve modules on Operations Management, and Three modules on Analytics

Programme offered by Continuing Education Programme (CEP), **IIT Delhi**

Learning Outcomes

- Understand core operations concepts, tools, and analytics techniques.
- Master production and capacity planning strategies.
- Learn maintenance policies and queue management models.
- Apply Six Sigma principles and quality control tools in operations.
- Optimize inventory using EOQ, POQ, and ABC analysis.
- Build and interpret MRP tables for dynamic demand scenarios.
- Forecast demand using time series and regression models.
- Leverage predictive and descriptive analytics for decision-making.
- Explore digital operations, Industry 4.0, and GenAI applications.
- Apply all concepts through a hands-on capstone project.

Programme offered by Continuing Education Programme (CEP), IIT Delhi

Explore Real-World Case Studies/Caselets

India is rapidly emerging as a global hub for operational intelligence and analytics. With industry digitization, supply chain modernization, and AI adoption accelerating across sectors, the potential is enormous—and growing.

- Case of aggregate production planning
- Case of capacity planning (Capacity Planning Techniques for Manufacturing Control Systems)
- Case on Maintenance Management
- Caselets (Examples) on Inventory Management/Quality Control
- Caselets (Examples) on Materials Requirement Planning
- Case on Forecasting
- Case on Business Simulation using Excel
- Case on Machine Selection using AHP/ISM
- Case on network distribution using Excel/LINGO
- Case on Facility Layout using LINGO

Who Should Attend?

- **New Managers** in operations roles (such as core operations, project management, business excellence, or program management) looking to build a strong foundation in operational concepts like capacity planning, workflow optimization, and error reduction.
- **Mid to Senior-Level Managers** aiming to refresh and deepen their understanding of key operations principles.
- **Executives** from manufacturing, quality, and business excellence functions seeking to enhance cost efficiency, quality, flexibility, and overall operational performance.
- **Fresh Graduates** aspiring to build a career in core operations with strong conceptual grounding and practical exposure.
- **Entrepreneurs** passionate about solving operational challenges and driving improved management practices within their organizations.

Programme offered by Continuing Education Programme (CEP), IIT Delhi

Programme Content

01 Foundation to Operations Management Analytics

- Introduction to Concepts, Tools, Techniques and Analytics
- Traditional and Advanced Production Systems
- Need for product redesign and development

02 Production and capacity planning

- Chase and Production Level Strategy
- Mixed strategy
- Capacity Management (CPOF and Capacity bill, resource profile)

03 Maintenance and Queue Management

- Preventive and Proactive Maintenance Policy
- Queue Planning (M/M/1, M/M/S, M/D/1 Models for job in queue management)

04 Quality and Six Sigma in operations

- Six Sigma Process in Operations
- Quality Control Charts (X and R-Charts, P & NP Charts)

05 Inventory Management

- Types of Inventory Costs
- EOQ/POQ/PPB Models
- Multi-Criteria ABC analysis

06 Material Resource Planning

- MRP Construction
- MRP Nervousness

This Module will provide insights to construct MRP Tables for dynamic/fluctuating product demand. The MRP tables provide time-scheduling information about when and how much the material needs to be procured to meet the market demand of the final product. The MRP table will integrate the inventory models discussed in Model VII to optimize the ordering policy. Finally, the MRP Table would help inventory managers to procure inventory at the right time in the right quality at the minimum inventory procurement cost.

07 Forecasting and Demand Management

- Time Series models (Exponential, Adjusted Exponential, Winter Holt model)
- Regression (Linear Trend Model)

08 Predictive Analytics

- Demand Forecasting
- Business Simulation in Operations
- Decision Tree Analytics

This module will demonstrate the application of various forecasting models discussed in Module II, using R and Excel on historical sales data. It will help sales managers and decision-makers estimate the most accurate demand forecasts with minimal error. By the end of the module, participants will be equipped to apply forecasting models in R and Excel to effectively predict future demand.

09 Descriptive Analytics

- Vendor Selection and Evaluation
- Risk Mitigations in Operations

This module will cover the application of various MCDM (Multi-Criteria Decision-Making) tools and techniques for selecting vendors, machines, parts, and product designs—particularly for medium- and long-term industrial decisions. Participants will also learn how to apply MCDM methods for risk mitigation in supply chains. Techniques covered include ISM, AHP, and TOPSIS. Ultimately, this module will enable managers to make informed short-term, medium-term, and long-term decisions, such as selecting suitable vendors or mitigating operational risks within the supply chain.

10 Facility Planning and Project Management

- Product, Process, Fixed and Cellular Layout
- CPM and PERT analysis of the project
- Why: Operations in projects require hybrid management
- Content: Agile for operations, hybrid project approaches, rapid prototyping, operationalizing project deliverables

11 Prescriptive Analytics

- Production Management
- Facility Layout Planning

12 Theory of Constraints (TOC) & Bottleneck Management

- Why: Highly effective in process industries, manufacturing, and services
- Content: TOC principles, constraint identification, throughput maximization

13 Digital Operations & Industry 4.0

- Why: Essential for future-ready operations managers
- Content: IoT, process automation, digital twins, cloud-based operations management, additive & smart manufacturing

14 Service Operations Management

Why: The service sector is a large employer; service design differs from manufacturing
Content: Blueprinting, customer experience, service quality (SERVQUAL), omni-channel delivery, Service design and delivery, Service quality management

15 GenAI Applications in Operations

Why: Generative AI is revolutionizing process automation, predictive maintenance, demand forecasting, quality assurance, process innovation, and problem-solving in operations. Familiarity with GenAI is fast becoming essential for future-ready operations leaders.
Content: Overview of GenAI technologies, Predictive maintenance and failure analysis, GenAI-powered process automation: documentation, SOPs, troubleshooting, etc.

16 Capstone Project (Group-Based Work)

Note: This is an indicative list of course topics and is subject to change as per IIT Delhi's discretion.

Programme Details

Duration	9 Months | 3 Hours Per Week
Delivery	Synchronous, Live Online
Session Timings	Sunday, 9:30 am to 1:00 pm
Application Closure Date	22nd July 2025
Commencement Date	12th October 2025
Eligibility Criteria	Graduates & Diploma holders (10+2+3) are acceptable
Screening & Selection	Screening and selection will be done by IIT Delhi.
Admission Criteria	• Admission will be based on a holistic evaluation of the candidate's academic qualifications and professional experience. • Shortlisting will be conducted by the Programme Coordinators. If required, one-on-one interviews may be scheduled as part of the selection process.
Assessment	Assignments (40%) | Projects (50%) | Attendance (10%)
Attendance	Minimum 50% attendance is mandatory as per IIT Delhi's discretion.

*Note: Admission to this limited intake will be granted on a first-come, first-serve basis for eligible applicants.

Programme offered by Continuing Education Programme (CEP), **IIT Delhi**

Pedagogy

- Assignment & Projects
- Capstone Project (One dedicated Module)
- Case-based Discussion

Tools & Techniques Covered:

- LINGO and R Studio package under the Analytics module
- Application of Excel Solver
- Regression

Programme Fee Details

Fee Structure

Application Fee: INR 1,000/- + GST
(non-refundable)*

Total Programme Fee*

INR 1,40,000/- + GST

Instalment Pattern

Instalment 1: INR 70,000 + GST
(3 days from the date of offer)

Instalment 2: INR 70,000 + GST
(On or before the programme launch on 12th October 2025)

Easy EMI Options Available*

- *Application Fee of INR 1,000/- + GST is non-refundable and will not be adjusted in the total programme fee.
- *Payment of fees should be submitted in the IIT Delhi CEP account only and the receipt will be issued by the IIT Delhi CEP account for your records.
- *Loan Options is a service offered by Jaro Education. IIT Delhi is not responsible for the same.

Withdrawal & Refund from Programme

- Candidates can withdraw within 15 days from the programme start date. A total of 80% of the total fee received will be refunded. However, the applicable tax amount paid will not be refunded on the paid amount.
- Candidates withdrawing after 15 days from the start of the programme session will not be eligible for any refund.
- If you wish to withdraw from the programme, you must email cepaccounts@admin.iitd.ac.in and crm.supportiitd@jaro.in, stating your intent to withdraw. The refund, if applicable, will be processed within 30 working days from the date of receiving the withdrawal request.

Programme Certification

- Participants who successfully meet the evaluation criteria (Aggregate Marks > 50%) and satisfy the requisite attendance criteria will be awarded a 'Certificate of Successful Completion' from Continuing Education Programme (CEP), IIT Delhi.
- Participants who are unable to score 50% marks in the evaluation will be eligible for the 'Participation Certificate'.

Programme Code: .....

Indian Institute of Technology Delhi

HAUZ KHAS, NEW DELHI - 110016

Department/Centre/School of .....

Continuing Education Programme

On

Title of the Programme

This is to certify that

Mr./Ms. Name Of The Participant

has successfully completed the online certificate programme on "Title of the Programme" held from ..... to ..... by the Indian Institute of Technology Delhi.

Prof. Programme Coordinator | Prof. Head of the Department | Prof. Head/Associate Head, CEP/CEP

An initiative under eVIDYA@IITD (ई-विद्या@IITD)

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An initiative under eVIDYA@IITD (ई-विद्या@IITD)

- The above e-certificate is for illustrative purposes only and the format of the certificate may be changed at the discretion of IIT Delhi.
- Only an e-certificate will be provided, and it will be issued by CEP, IIT Delhi.
- The organising department of this programme is the Department of Management Studies, IIT Delhi.

Programme offered by Continuing Education Programme (CEP), **IIT Delhi**

Hear from the Past Participants of the Programme

Shashikumara B.S.

Thrilled To Announce: Completed Operations Management and Analytics Course at IIT Delhi!
Delighted to share that I've successfully finished the Operations Management and Analytics course at IIT Delhi, guided by Prof. Surya Prakash Singh.

Throughout this intensive programme, I gained deep insights into optimizing processes and leveraging data analytics for efficiency and growth. The engaging curriculum, real-world case studies, and Dr. Singh's mentorship have equipped me with practical skills crucial for today's business challenges.

Grateful for this enriching experience and excited to apply my newfound knowledge for impactful results in my career!

Excited for the next chapter and eager to continue my pursuit of knowledge and growth!

Vishnu Sharma

I am thrilled to announce that I have successfully completed the Certificate of Executive Programme in Operation Management and Analytics from IIT-D, empowering me with advanced skills and strategic insights for optimizing operational efficiency and driving organizational success.

Deep gratitude to the professors . Dr. Surya Prakash Singh (IIT Delhi), Dr. Abhijit Majumdar (IIT Delhi), Dr. Pankaj Dutta (IIT Bombay), Dr. Rajesh Matai (BITS Pilani, Ex IIT Kanpur), Mr. Ram, Director (TATA CLIQ), whose expertise enriched my learning journey

Avinash Rai

I am absolutely thrilled to announce that I have successfully completed a Certification Course in Operations Management and Analytics from the esteemed Indian Institute of Technology Delhi (IIT Delhi).
Special thanks to my mentor, Dr. Surya Prakash Singh, whose guidance was invaluable throughout this journey. This course has equipped me with cutting-edge skills and insights into optimizing operations and leveraging analytics for effective decision-making.

Ready to apply these learnings to drive efficiency and innovation in every aspect of operations. Looking forward to the exciting opportunities ahead.

Ayush Jain

I'm happy to share that I've completed my Executive Programme in Operation Management and Analytics at Indian Institute of Technology, Delhi.

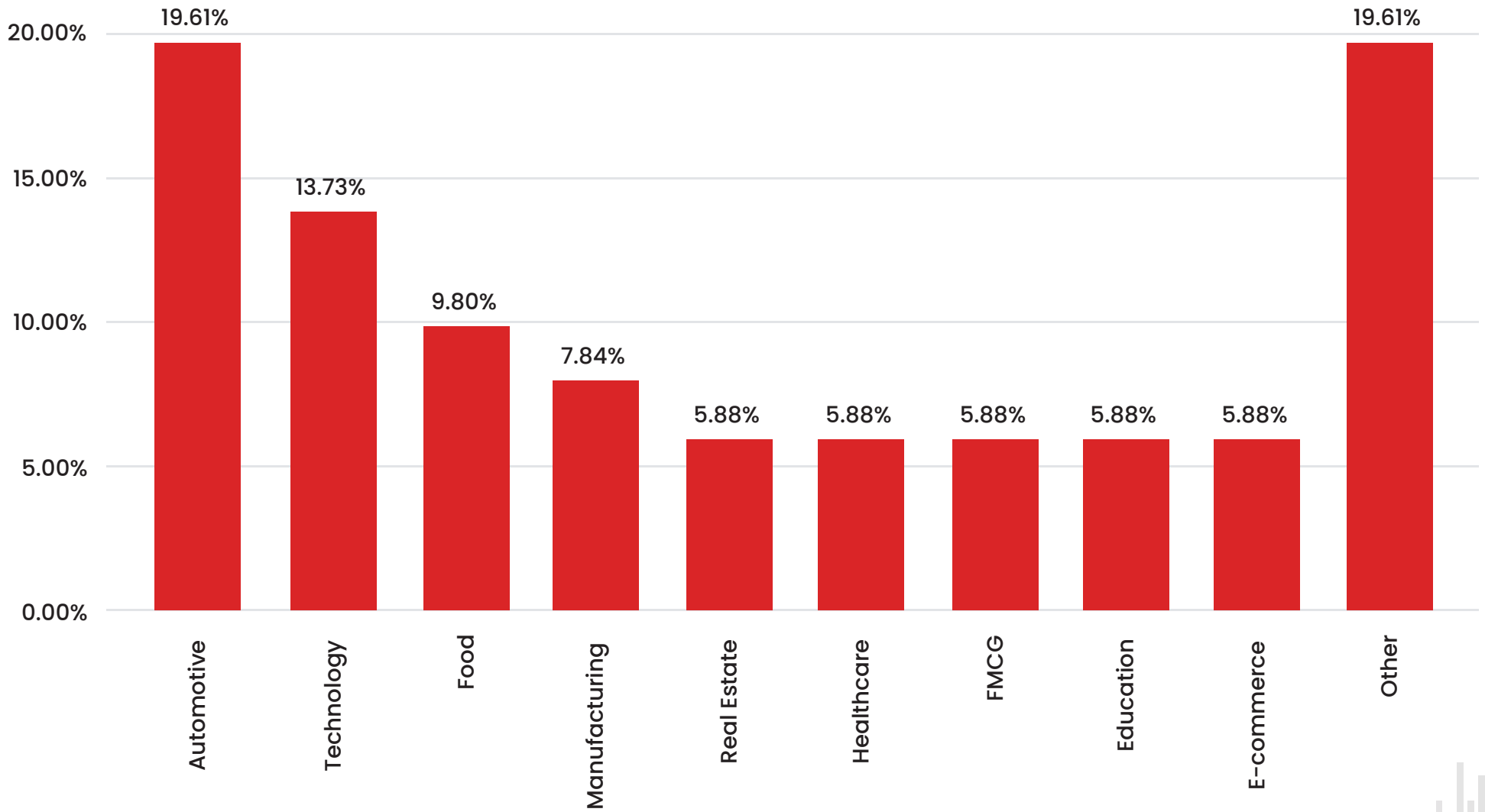
I'm grateful to Professor Dr. Surya Prakash Singh, Abhijit Majumdar & Department of Management Studies, IIT Delhi programme team for their efforts in organizing such a valuable session.

Inside Look: Highlights from Our Previous Cohort

Programme offered by Continuing Education Programme (CEP), **IIT Delhi**

Participant Snapshot: A Closer Look at Our Latest Cohort's Demographics

Industry Representation



Participant Snapshot: A Closer Look at Our Latest Cohort's Demographics

Top Organizations Represented

Key Roles & Designations

Director	Assistant General Manager	Head of Operations	Senior Manager
Manager Operations	Project Manager	Deputy Manager	

Note:

- The highlighted information above reflects the demographics of a previous batch.
- Past performance does not guarantee future outcomes.
- All company names are trademarks or registered trademarks of their respective owners. Use of them does not imply any affiliation with or endorsement by these companies.
- This is a partial list.

Programme Coordinator

Dr. Surya Prakash Singh

Professor & Head

Department of Management Studies, Indian Institute of Technology Delhi

Prof. Surya Prakash Singh is a Dhananjaya Chair Professor in the Department of Management Studies (DMS), Indian Institute of Technology Delhi (IITD), India. He is also serving as chairperson of Operations & Supply Chain group at DMS, IIT Delhi. He holds a Ph.D. from IIT Kanpur. He is also a postdoctoral fellow from the NUS Singapore-MIT USA alliance. He has also been a visiting fellow at Newcastle Business School, Newcastle University, UK; and visiting professor at Aalborg University, Denmark and IMT Atlantique, Nantes, France. In addition to this, he was also associated in various capacities at some of the B-Schools in the country, such as IIM Amritsar, IIM Bodhaya, IIM Kashipur, IIM Ranchi, IIM Rohtak, IIM Raipur, MDI Gurgaon, SNU Gr. Noida, SCMHRD Pune, XLRI, and XIM Bhubaneswar.

His research interests include broadly in the area of Operation & Supply Chain Management, Big Data applications in Operations, Industry 4.0, Block Chain Technology, and developing heuristics and metaheuristics approaches. His work has been published in leading international journals of repute. More than 160 research papers have been published at various international journals and conference proceedings. He has also Guest Edited special issues for Annals of Operations Research; Production Planning & Control; Resources, Conservation & Recycling; Global Journal of Flexible Systems Management; Management of Environmental Quality; Sustainability; and International Journal of Logistics Management. In addition, he is also actively involved as an Associate Editor at Journal of Cleaner Production & Global Journal of Flexible Systems Management, and Area Editor at Operations Management Research. He is also acting as Editorial Board member at International Journal of Information Management and International Journal of Information Management Data Insight.

Prof. Singh believes in action research, therefore, he has done various projects and consultancies at domestic and international levels to show the real application of the research which he carried out and published in various journals of repute. Some of the organizations where he showed application of research are UKIERI British Council Division UK; BASF SE Germany; Ministry of Tribal Affairs, Govt. of India; Indian Oil Corporation Limited; Rail Vikas Nagar Limited; UP Sugar Mill Associations; National Buildings Construction Corporation India; Airport Authority of India Ltd., UGC India; Central Council for Research in Ayurvedic Sciences-India; Public Health Engineering Department, Govt. of M.P., National Highway Authority of India Limited, Govt. of India; Ivory Education Pvt. Ltd, New Delhi, and SPARC, GoI.

About IIT Delhi

The Indian Institute of Technology Delhi (IIT Delhi) is one of the 5 initial IITs established for training, research and development in science, engineering and technology in India. Established as College of Engineering in 1961, the Institute was later declared as an Institution of National Importance under the "Institutes of Technology (Amendment) Act, 1963" and was renamed as "Indian Institute of Technology Delhi". It was then accorded the status of a Deemed University with powers to decide its own academic policy, to conduct its own examinations, and to award its own degrees.

Since its inception, over 48000 students have graduated from IIT Delhi in various disciplines, including Engineering, Physical Sciences, Management, Humanities and Social Sciences. Of these, nearly 5070 received Ph.D. degrees. The rest obtained a Master's Degree in Engineering, Sciences and Business Administration. These alumni today work as scientists, technologists, business managers and entrepreneurs. There are several alumni who have moved away from their original disciplines and have taken to administrative services, active politics, or are with NGOs. In doing so, they have significantly contributed to the building of this nation and to industrialization around the world.

#1 Ranked

in Asian University Rankings Southern Asia as per QS World University Rankings (2025) in India

#4 Ranked

as per NIRF India Rankings (2024) (Management category)

About Continuing Education Programme (CEP)

Executive education is a vital need for companies to build a culture that promotes newer technologies and solutions and builds a workforce that stays abreast of the rapidly transforming needs of the technological, business and regulatorylandscape. Committed to the cause of making quality education accessible to all, IIT Delhi has launched Online Certificate Programmes under eVIDYA@IITD (ई-विद्या@IITD): enabling Virtual & Interactive-learning for Driving Youth Advancement@IITD for Indian as well as international participants. These outreach programmes offered by the Indian Institute of Technology Delhi (IIT Delhi) are designed to cater to the training and development needs of various organizations, industries, society and individual participants at national and international level with a vision to empower thousands of young learners by imparting high-quality Online Certificate Programmes in cutting-edge areas for their career advancement in different domains of engineering, technology, science,

Programme offered by Continuing Education Programme (CEP), IIT Delhi

Jaro's Programme Expert

Ms. Priya Rathod

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For any feedback, please write to
CEP, IIT Delhi at contactcep@admin.iitd.ac.in

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Online Certificate Programmes are offered by the Indian Institute of Technology Delhi under the aegis of Continuing Education Programme (CEP) so that the Institute can realise its vision of serving as a valuable resource for industry and society, and fulfil its mission to develop human potential to its fullest extent so that intellectually capable and imaginatively gifted leaders can emerge in a range of professions.

Programme offered by Continuing Education Programme (CEP), IIT Delhi