



भारतीय प्रौद्योगिकी संस्थान दिल्ली  
Indian Institute of Technology Delhi

# Executive Programme in **Operations Management & Analytics**

8 Months | Live Online

**Batch 05**



# Operational Management and Analytics: Trends to Keep on Your Radar



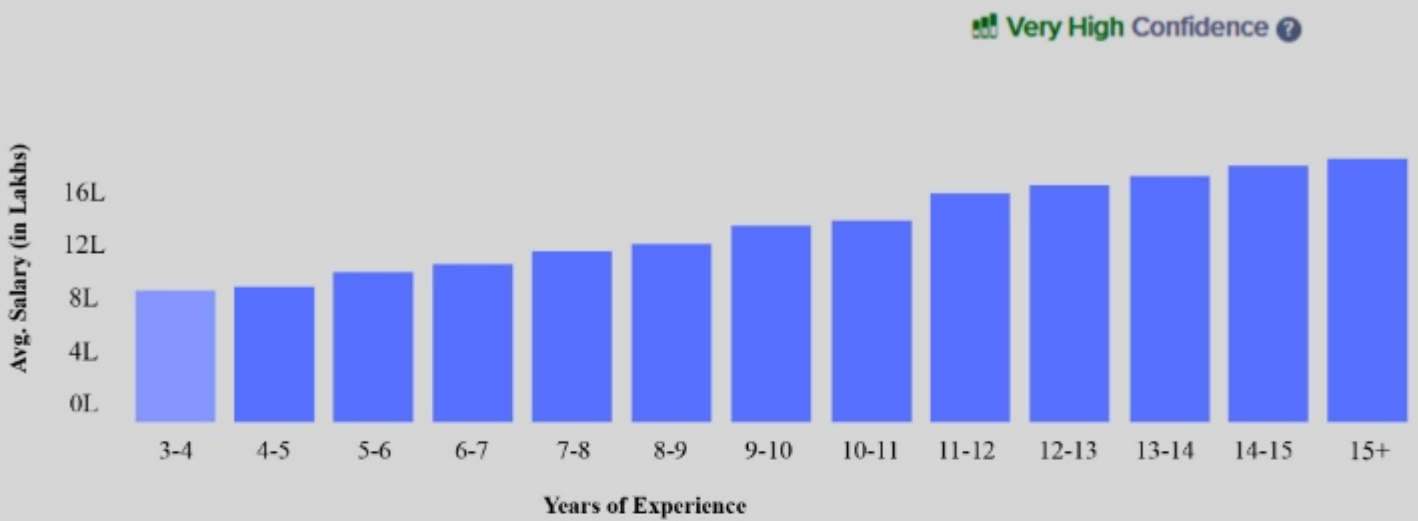
The Operational Analytics market is expected to grow from USD 11.07 billion in 2024 to USD 31.72 billion by 2032, with a CAGR of 14.06%. In 2023, it was valued at USD 9.53 billion.

\*Market Research Future



Operational management and analytics are crucial aspects of any successful business. As companies increasingly rely on data-driven decision-making, it is essential to stay on top of the latest trends in operational management and analytics. One trend to keep on your radar is the integration of artificial intelligence and machine learning into operational management systems. These technologies can help companies automate tasks, optimize processes, and identify new opportunities for growth. Another important trend is the growing importance of data privacy and security. With increasing data breaches and cyber threats, companies need to ensure that their analytics and operational management systems are secure and compliant with regulations. Finally, there is a growing focus on sustainability and environmental impact, and operational management systems and analytics can help companies measure and reduce their carbon footprint. By staying abreast of these trends, companies can make informed decisions, remain competitive, and drive success in the years to come.

## Projected Average Annual Salary



Operations Manager salary in India with less than 3 year of experience to 17 years ranges from ₹ 3.0 Lakhs to ₹ 21.0 Lakhs with an average annual salary of ₹ 10.7 Lakhs based on 77.2k latest salaries.

\*AMBITION BOX, 2024





# Overview

The aim of this interdisciplinary programme is to familiarize participants, including decision-makers from both operations and non-operations backgrounds, with the fundamentals of operations management and analytics. Business school case studies will be employed as part of the pedagogical approach, combining live lectures with self-paced learning modules. The programme intends to equip learners with the ability to utilize operations management principles and analytics concepts effectively. It will provide new managers with an opportunity to establish a solid foundation in operations management and use data analysis to gain insights and enhance processes.

Seasoned managers can gain fresh insights into their company's data and make more informed decisions for their organizations. The Indian Institute of Technology Delhi is offering this online certificate programme through its Continuing Education Programme (CEP) to fulfill its vision of being a valuable resource for industry and society. The programme will develop human potential to the fullest extent, allowing intellectually capable and imaginatively gifted leaders to emerge in various professions.





# Programme Highlights

Certificate of Successful Completion  
from CEP, IIT Delhi



Experience High-impact Live  
Online Learning



Explore Real-World  
Case Studies/Caselets



Gain Industry-oriented Insights from  
Eminent IIT Delhi Faculty Members



Peer-to-Peer Learning and  
Expand Your Professional Network



Learn the Role of Analytics in Operations  
Management Besides Core Industry  
Operations



Eight Modules on Operations  
Management and Three Modules  
on Analytics



# Who should attend this programme?

- New Managers in an operations role, (Core Operations Project Management, Business Excellence, or Program Management) who need to understand concepts of fundamental operations, capacity planning, workflows, error reduction, etc.
- Mid-Senior Level Managers who want to revisit concepts.
- Executives from core operations roles (Manufacturing, Quality and Excellence, etc.) who want to optimize costs/quality/efficiency/flexibility of business operations.
- Fresh Graduates who want to pursue a course in core operations.
- Entrepreneurs who enjoy solving problems and driving better management practices in their organizations.





# Programme Content

## 1 Foundation to Operations Management Analytics (1 Week, 2 Sessions)

- Introduction to Concepts, Tools, Techniques, and Analytics
- Traditional and Advanced Production Systems
- Need for Product Redesign and Development

## 2 Production and Capacity Planning (2 Weeks, 4 Sessions)

- Chase and Production Level Strategy
- Mixed Strategy
- Capacity Management (CPOF and Capacity Bill, Resource Profile)

## 3 Maintenance and Queue Management (2 Weeks, 4 Sessions)

- Preventive and Proactive Maintenance Policy
- Queue Planning (M/M/1, M/M/S, M/D/1 Models for Jobs in Queue Management)

### Evaluation and Doubt Clearance - 6th Week

## 4 Quality and Six Sigma in Operations (2 Weeks, 3 Sessions)

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

## 5 Inventory Management (2 Weeks, 3 Sessions)

- Types of Inventory Costs
- EOQ/POQ/PPB Models
- Multi-criteria ABC Analysis

## 6 Materials Resource Planning (2 Weeks, 4 Sessions)

- MRP Construction
- MRP Nervousness

This module will provide insights to construct MRP tables for dynamic/fluctuating product demand. The MRP table provides time scheduling information about when and how much the material needs to procure (order) to meet the market demand of the final product. The MRP table will integrate the inventory models discussed in Model VII (Inventory Management) to optimize the ordering policy. Finally, the MRP table would help inventory managers to procure inventory at the right time in the right quantity at minimum inventory procurement cost.

### Evaluation and Doubt Clearance - 13th Week

## **7 Forecasting and Demand Management (2 Weeks, 4 Sessions)**

- Time Series Models (Exponential, Adjusted Exponential, Winter-holt Model)
- Regression (Linear Trend Model)

## **8 Predictive Analytics (2 Weeks, 4 Sessions)**

- Demand Forecasting
- Business Simulation in Operations

This module will provide the use of various forecasting models discussed in Module II (Forecasting and Demand Management) using R and Excel for past sales data. This will help the sales managers/decision makers to estimate the best demand forecast with minimum forecast error, keeping the highest level of forecasting accuracy. At the end, this module will enable the participants in the application of R and Excel using various forecasting models to predict future demand.

## **9 Descriptive Analytics (3 Weeks, 5 Sessions)**

- Vendors Selection and Evaluation
- Risk Mitigation in Operations

This module will provide the application of various MCDM Multi-criteria Decision Making tools and techniques for vendor/machine/parts/product design selection for medium and long term decisions for industries. In addition, the participants will also learn risk mitigation in the supply chain using MCDM. Some of the MCDM techniques covered here are ISM, AHP, and TOPSIS. Finally, this module will help managers/decision makers in short, medium and long term decisions, such as which vendor(s) to be selected for medium/long term duration, and similarly how to mitigate operational risks in the supply chain.

**Evaluation and Doubt Clearance - 20th Week**

## **10 Facility Planning and Project Management (2 Weeks, 4 Sessions)**

- Product, Process, Fixed and Cellular Layout
- CPM and PERT Analysis of Project

## **11 Prescriptive Analytics (3 Weeks, 5 Sessions)**

- Production Management
- Facility Layout Planning

This module will provide the learning on linear programming models for optimal utilization of resources in single and multiple period production planning. It will also cover the impact of market fluctuation on the production cost and its profit. It will also provide the application of linear models on the optimal design of manufacturing layout to minimize material handling cost, which in long run helps in minimizing the manufacturing cost. Finally, the module helps operations managers to make use of this analytics in layout and production planning.

**Evaluation and Doubt Clearance - 25th Week**

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



# Explore Real-World Case Studies/Caselets

Every module will have a case study to demonstrate the application of that particular topic. Some names are as below:

- ◆ 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



# Pedagogy

Assignment  
& Projects



Case-based  
discussion



## Tools & Techniques Covered:

Application of  
Excel Solver



LINGO and R Studio  
package under the  
Analytics module



Regression



# Programme Details

Duration	: 8 months
Delivery	: Live Online
	: Session Timings: Sunday, 2:00 pm to 5:30 pm
Schedule	: Commencement Date: 20 <sup>th</sup> October 2024
	: Application Closure Date: 15 <sup>th</sup> October 2024
Eligibility	: Graduates & Diploma holders (10+2+3) are acceptable
Assessment Criteria	: Assignments (40%)   Projects (50%)   Attendance (10%)
Attendance Criteria	: Minimum 50% attendance is mandatory as per IIT Delhi's discretion.
Screening & Selection	: Screening and selection will be done by IIT Delhi

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# Programme Fee Structure & Instalment Pattern

Fee Structure	
Particulars	Amount
Programme Fee	INR 1,25,000/- + GST

Instalment Pattern	
Particulars	Instalment Amount
Booking Amount	INR 70,000/- + GST 3 days from the date of the offer
Instalment 1	INR 55,000/- + GST 17th October 2024

- \*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](mailto:cepaccounts@admin.iitd.ac.in) and [crm.supportiitd@jaro.in](mailto: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



The image shows a certificate template for the Indian Institute of Technology Delhi. It features the IIT Delhi logo and name at the top, followed by the department and programme details. The main text certifies that a participant has successfully completed an online certificate programme. It includes fields for the participant's name, the programme title, and the dates. There are three signature lines for the Programme Coordinator, Head of the Department, and Head/Associate Head, QIP/CEP. A QR code is located at the bottom center. The background features a faint image of a building.

**Indian Institute of Technology Delhi**  
HAUZ KHAS, NEW DELHI - 110016

Programme Code: \_\_\_\_\_

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, QIP/CEP

An initiative under eVOC@IITD (3-Reg@IITD)



The image shows a participation certificate template for the Indian Institute of Technology Delhi. It features the IIT Delhi logo and name at the top, followed by the department and programme details. The main text certifies that a participant has participated in an online certificate programme. It includes fields for the participant's name, the programme title, and the dates. There are three signature lines for the Programme Coordinator, Head of the Department, and Head/Associate Head, QIP/CEP. A QR code is located at the bottom center. The background features a faint image of a building.

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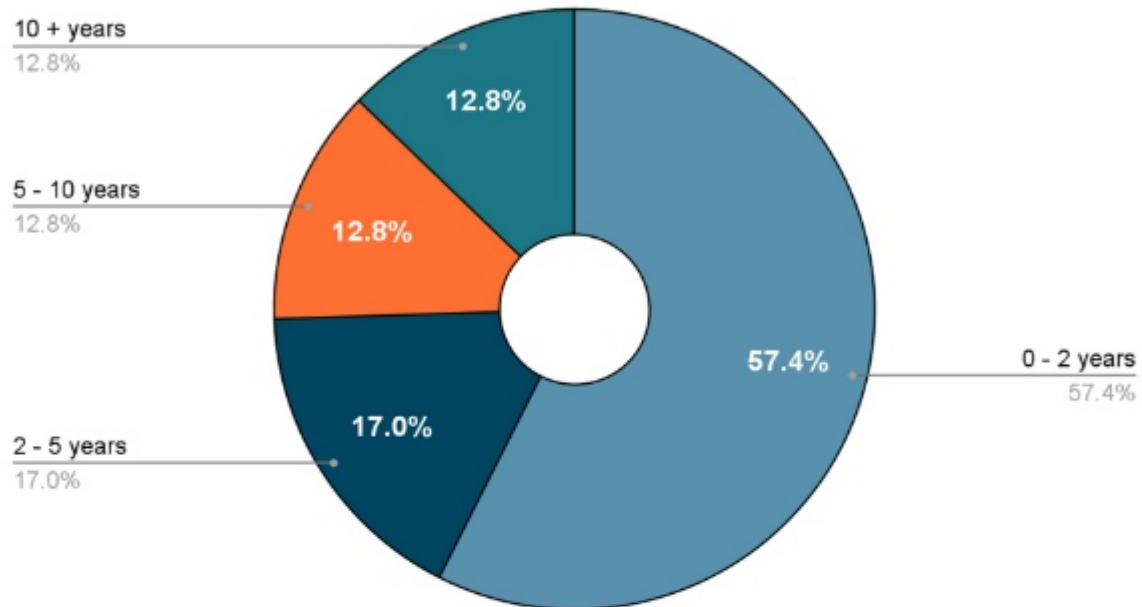
- Participants who meet the evaluation criteria (Aggregate Marks > 50%) and satisfy the requisite attendance criteria will be awarded a 'Certificate of Successful Completion' from Continuing Education Programme (CEP), IIT Delhi.
- Participants who are unable to score 50% marks in the evaluation will be eligible for the 'Participation Certificate.'
- The organizing department for this programme is the Department of Management Studies (DMS), IIT Delhi.
- Only e-certificates will be issued by CEP, IIT Delhi.



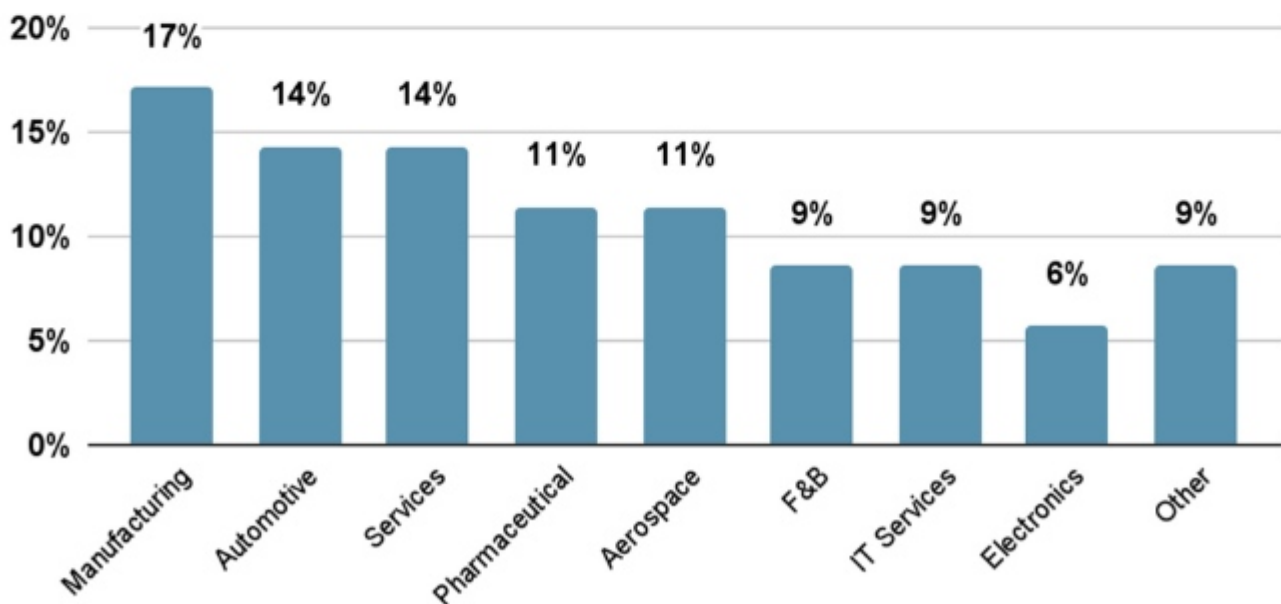


# Recent Batch Analysis

## Past Experience of Professionals

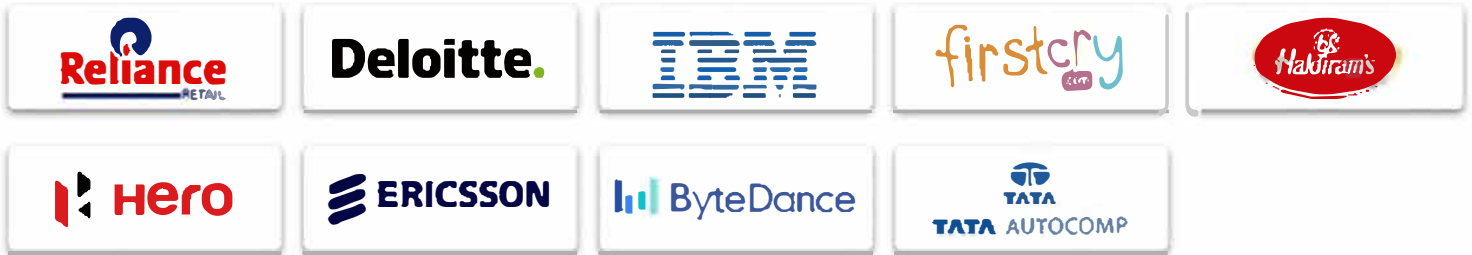


## Industry Profile of Professionals



# Recent Batch Analysis

## Top Companies



## Top Designations



Note:-

- Past performance records do not guarantee any future opportunities.
- All company names are trademarks or registered trademarks of their respective holders. Use of them does not imply any affiliation with or endorsement by them.
- The list is partial.





# Hear from the Alumni



**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.



# Hear from the Alumni



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 program team for their efforts in organizing such a valuable session.





# Programme Co-ordinator



## **Dr. Surya Prakash Singh**

**Professor**

**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),

He is also serving as chairperson, Operations & Supply Chain group at DMS, IIT Delhi. He holds a Ph.D. from IIT Kanpur. He is also a postdoctoral fellow from NUS Singapore-MIT USA alliance. He has also been a visiting fellow at Newcastle Business School, Newcastle University, UK; and a visiting professor at Alborg 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 Bodgaya, IIM Kashipur, IIM Ranchi, IIM Rohtak, IIM Raipur, MDI Gurgaon, SNU Gr. Noida, SCMHRD Pune, XLRI, and XIM Bhubaneswar.

His research interests are 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.

# 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 PhD 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.



as per QS World University  
Ranking (2024) in India



as per NIRF India  
Management Rankings (2024)





# About Continuing Education Programme (CEP)

Executive education is a vital need for the companies to build a culture that promotes newer technologies and solutions and builds a workforce that stays abreast of the rapidly transforming needs to the technological, business and regulatory landscape. 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 organisations, 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, humanities and management.



Services Provided By

# jaro education



11th, Vikas Centre, CG Rd, opposite Golf Club,  
Wadavli, Vasant Vihar Complex,  
Chembur, Mumbai.

## Ms. Priya Rathod

Jaro Programme Expert



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priya.rathod@jaro.in

For any feedback, please write to CEP,  
IIT Delhi at [contactcep@admin.iitd.ac.in](mailto:contactcep@admin.iitd.ac.in)

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 realize 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.

