भारतीय प्रौद्योगिकी संस्थान दिल्ली
Indian Institute of Technology Delhi

CERTIFICATE PROGRAM IN OPERATIONS MANAGEMENT & ANALYTICS

CONTINUING EDUCATION PROGRAMME (CEP), IIT DELHI

6 MONTHS | 25 WEEKS

CONTENTS

PROGRAMME OVERVIEW

The course is designed to introduce participants (decision-makers from operations as well as non operations background) to fundamentals of operations management and analytics.

The programme will be taught using business school case study pedagogy and will use a mix of live lectures and self-paced learning modules.

The programme aims at enabling the learners to make use of operations management from the point of view of fundamental concepts related to operations and use of analytics. New Managers will get a chance to build strong operations foundations and analyse business data to gain insights as well as improve processes.

Seasoned Managers will find a new perspective of looking at the company data and drive better-informed decisions in their firms.

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.

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 have graduated from IIT Delhi in various disciplines including Engineering, Physical Sciences, Management and Humanities & 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 contributed significantly to the building of this nation, and to industrialisation around the world. For more details, please visit: www.iitd.ac.in

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. For more details, please visit: http://cepqip.iitd.ac.in

PROGRAMME HIGHLIGHTS

- 2nd — India's #2 ranked University as per QS Rankings 2022
- 5th — NIRF Rankings 2021 : Management
- Experience high-impact live online learning and explore real-world case studies / caselets
- Gain industry-oriented insights from eminent IIT Delhi faculty members
- Participate in peer-to-peer learning and expand your professional network
- Receive a Certification in "Operations Management and Analytics" from IIT Delhi

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

WHO IS THIS PROGRAMME FOR?

- New Managers in an Operations role, (Core operations, Project Management, Business Excellence, 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 (Manufacturing and Quality and Excellence etc) who want to optimise 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 orgs

PROGRAMME CURRICULUM

Minimum Eligibility:
Graduates (10+2+3)/diploma holders

Duration:
6 months | 25 weeks

Selection Process:
Screening and selection will be done by IIT Delhi

Assignment & Projects:
25+

Module Duration / Week Learner time :
6-8 Hours/Week | 2 Live sessions per week

MODULE

Module I:
Foundation to Operations Management Analytics **(1 Week, 2 sessions)**

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

Module II:
Production and Capacity Planning **(2 Weeks, 4 sessions)**

Chase and production level strategy
Mixed strategy
Capacity management (CPOF and Capacity Bill, Resource profile)

Module III:
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 queue management)

Evaluation at 6th Week

Module IV:
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)

Module V:
Inventory Management **(2 Weeks, 3 sessions)**

Types of Inventory costs
EOQ/POQ/PPB models
Multi-criteria ABC Analysis

Module VI:
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. MRP table will integrate the inventory models discussed in Model VII (Inventory Management) to optimize the ordering policy. Finally, MRP table would help inventory managers to procure inventory at the right time in the right quantity at minimum inventory procurement cost.

Evaluation at 13th Week

Module VII:
Forecasting and Demand Management **(2 Weeks, 4 sessions)**

Time series models (Exponential, Adjusted Exponential, Winter-holt model)
Regression (Linear trend model)

Module VIII:
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 the application of R and Excel using various forecasting models to predict future demand.

Module IX:
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 industry. In addition, the participants will also learn the risk mitigation in 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 short/medium/ long term duration, and similarly how to mitigate operational risks in the supply chain.

Evaluation at 20th Week

Module X:
Facility Planning and Project Management **(2 Weeks, 4 sessions)**

Product, process, fixed and cellular layout
CPM and PERT analysis of project

Module XI:
Prescriptive Analytics **(3 Weeks, 5 sessions)**

Production Management
Facility Layout Planning
This module will provide the learning on linear programming models for an optimal utilization of resources in single and multiple period production planning. The module will also cover the impact of market fluctuation on the production cost and its profit. The module 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 at 25th Week

PROGRAMME FACULTY

Dr. Surya Prakash Singh

Professor
Department of Management Studies
Indian Institute of Technology, Delhi

Prof. Surya P. Singh is a Dhanajaya Chair Professor and Chairperson, Operations & Supply Chain Group at Department of Management Studies, IIT Delhi. In addition, Prof. Singh was also a Visiting Fellow at Newcastle Business School, Newcastle University, UK and Center for Production & Industrial Engineering, Aalborg University, Denmark. He is also coordinator of "Center of Excellence on Data & Decision Science" funded by the Ministry of Tribal Affairs, Govt. of India.

Prof. Singh holds PhD from Industrial & Management Engineering, IIT Kanpur. Prof. Singh is Post-Doctoral Fellow from National University of Singapore, Singapore and MIT USA Alliance. After working in industry for a brief period, he joined IIT Delhi. He is also associated in various capacities with several Indian B-Schools such as XIMB, MDI Gurgoan, IIM Rohtak, IIM Sirmaur, IIM Kashipur, IIM Ranchi, IIM Amritsar, BIMTECH, Shiv Nadar University, SCMHRD Pune etc.

Prof. Singh managed several Projects, Consultancies, and MDPs for IOCL, Airport Authority of India, NBCC New Delhi, UP Sugar Mills Ltd, NHAI Ltd, Ministry of Tribal Affairs, PWD MP Govt., CCRAS-Ministry of Ayush, RVNL New Delhi, UKIERI, DST, and NTPC.

Prof. Singh mainly works in the area of Operations Management, Operations Research, Applied Operations Research, Operations & Supply Chain Analytics, Manufacturing Strategy, Industry 4.0, Block chain Technology in Operations & Supply Chain. Very recently, one of his work on Industry 4.0 analytics came in the limelight and covered by IIT Delhi and national news https://home.iitd.ac.in/news-self-reliant-economy.php and supervised 14 PhDs.

Prof. Singh authored book on Production & Operations Management published by Vikas Publishing House, and Area/Associate Editor at Operations Management Research journal published by Springer Nature.

PROGRAMME FACULTY

Dr. Gourav Dwivedi

Assistant Professor
Department of Management Studies
Indian Institute of Technology, Delhi

Prof. Gourav Dwivedi is a fellow of the Indian Institute of Management (IIM) Lucknow and a Bachelor of Technology graduate in Mechanical Engineering from HBTI Kanpur. Currently, he is Assistant Professor at Department of Management Studies, IIT Delhi.

He has academic work experience at IIM Rohtak and at Great Lakes Institute of Management, Gurgaon. Additionally, he has six years of work experience with Larsen & Toubro Technology Services Limited, where he has worked in several projects including process plant design and installation support, for Fortune 500 CPG companies. He works in the area of Supply Chain Management, Transportation or Logistics Modelling, Sustainability, Industry 4.0, and Systems Thinking.

Dr. Prasanna

Assistant Professor
Production and Quantitative methods
Indian Institute of Management, Ahmedabad

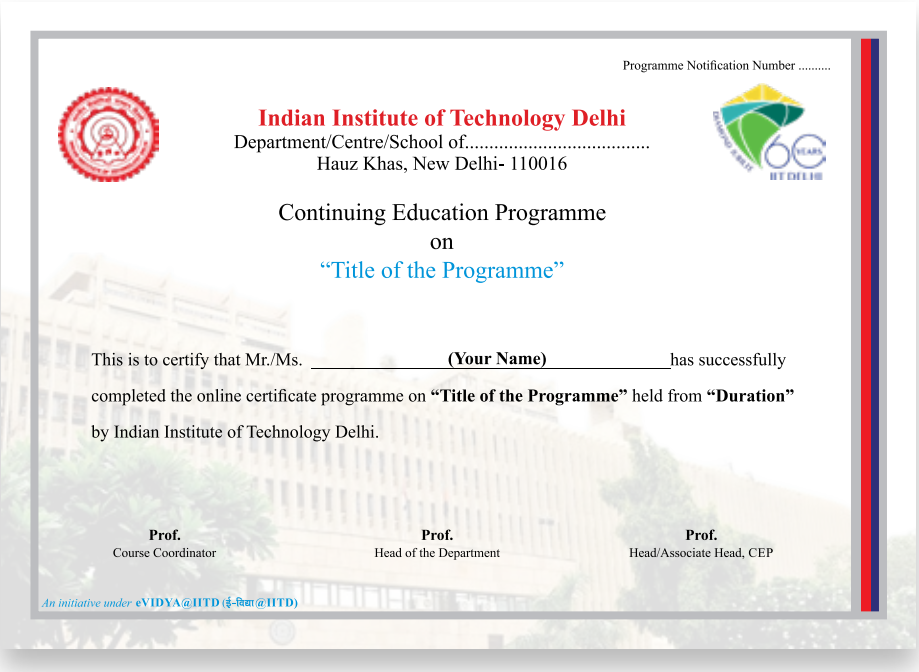
Prof. Prasanna is a Fellow in Production and Quantitative methods from Indian Institute of Management (IIM) Ahmedabad. Post his fellow degree, he worked as a post-doctoral fellow at John Molson School of Business, Concordia University, Canada. Currently, he is Assistant Professor at Department of Management Studies, IIT Delhi.

He works in the area of Multi-level/Multi- objective Optimization Problems, Large Scale Optimization and Optimization Problems under Parameter Uncertainty (Robust / Stochastic). He closely works in the area of Supply chain logistics, Network Design, Location and Interdiction problems. He works in the area of Operations Research, Applied Operations Research and Operations Management Analytics.

PROGRAMME CERTIFICATE

Completion

Requirement - 60% in overall assessments will get a completion certificate



Programme Notification Number .....

Indian Institute of Technology Delhi
Department/Centre/School of.....
Hauz Khas, New Delhi- 110016

Continuing Education Programme
on
"Title of the Programme"

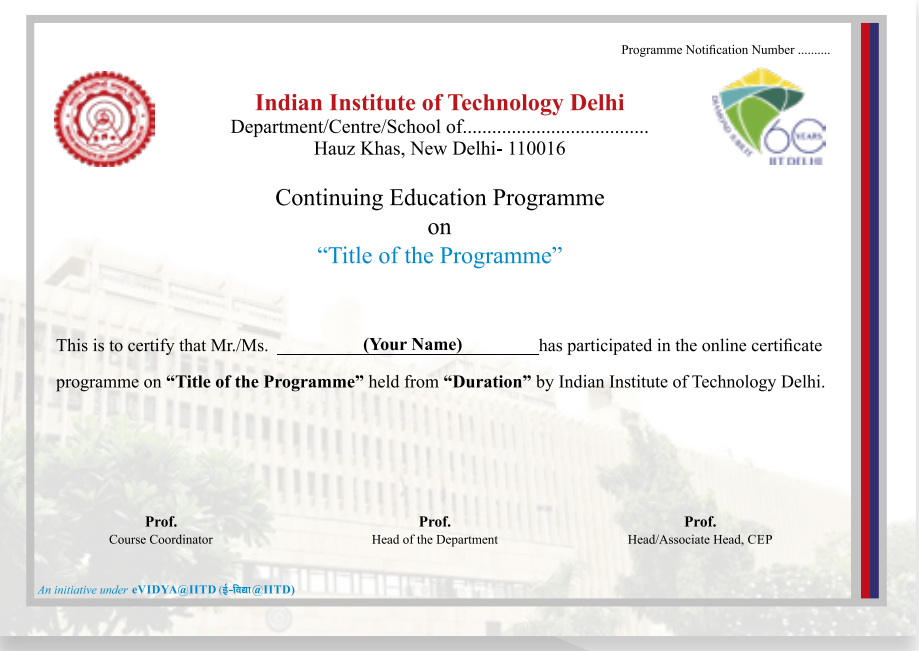
This is to certify that Mr./Ms. **(Your Name)** has successfully completed the online certificate programme on **"Title of the Programme"** held from **"Duration"** by Indian Institute of Technology Delhi.

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

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

Participation

Requirement - Everyone else who finishes the course with less than 60% in overall assessments



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*Only e-certificates will be issued by CEP IIT Delhi.

ADMISSION DETAILS

DURATION

6 months (25 weeks)

PROGRAMME FEE

INR 1 Lakh INR + GST 18%

Installment 1: **₹59,000** | Installment 2: **₹59,000**
Block Amount (For EMI Applicants): **₹10,000**

PROGRAMME START DATES

Please refer to the website for start dates

IMPORTANT INFORMATION

Apply Now >

Last date to apply: **13th June, 2022**
Interview dates: **4th to 13th June, 2022**
Shortlisted candidates will be informed by date: **16th June, 2022**
Last date to submit the installment 1 fee: **23th June, 2022**
Last Date to pay block amount for EMI applicants: **23th June, 2022**
Last date to submit the installment 2 fee: **28th July, 2022**
Program Start Date: **1st August, 2022**

All fee should be submitted in IITD CEP Account only, and the details will be shared post selection.

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For further details, contact: **iitd@upgrad.com | 18002102020**

For any feedback: **hodqipcep@admin.iitd.ac.in | Head CEP, IIT Delhi**

Services Provided by
upGrad

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