



INDIAN INSTITUTE OF  
MANAGEMENT CALCUTTA



# ADVANCED PROGRAMME IN DATA SCIENCES (APDS)

## Batch 7

*Long Duration Programme (LDP) for Working Professionals*

PROGRAMME PARTNER



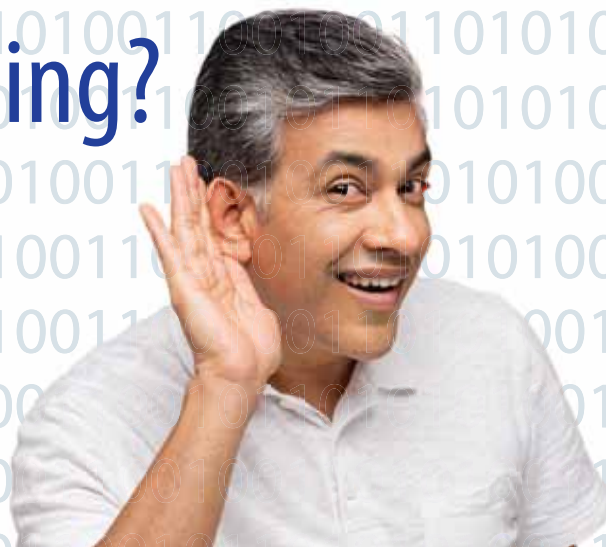
EXECUTIVE EDUCATION

**Duration:** Twelve months

**Mode:** Live lectures by IIM Calcutta faculty on video once/twice a week (attend from anywhere)  
+ 10 days of on-campus learning at IIM Calcutta

# Data tells interesting stories.

## Are you listening?



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# INTRODUCTION

If there's anything that's NOT in short supply today, it's DATA. To put things into perspective, more than 300 million terabytes of data are generated every day, as of 2023! And this figure will continue to rise exponentially in the future.

In the world of business, the ability to base decisions on data is an essential ingredient of success, but it isn't as easy as it sounds. Often hidden deep within heaps of business data, are remarkable stories that have not been heard. However, these "stories" or insights are only accessible to those trained in the sophisticated data science discipline. These insights are springboards that take decisions from the realm of hunch to that of witnessed reality, thus remarkably increasing the chances of the decisions being "right". Data-driven decisions and strategy supported by sound analytics are key to staying at the forefront in any industry, especially in today's digital world.

This data-heavy world obviously needs specialists who can mine insights from the heaps of data. The growing pool of sought-after professionals who can do that are DATA SCIENTISTS. It is therefore not surprising that 'Data Scientist' makes it to the top jobs list in almost every survey.

What does it take to start integrating data sciences into the decision-making process? Well, in short, it takes a good conceptual grasp of data sciences as well as familiarity with its tools and techniques along with business acumen.

Since the world of data sciences in its current form has come into being only over the last few years and continues to evolve rapidly, avenues for sound formal training in the discipline are also limited. A structured learning programme that dives into the theory and practice of the discipline in the modern business context is immensely valuable for anyone who is serious about reaping the benefits of data sciences.





# PROGRAMME OVERVIEW

IIM Calcutta's *Advanced Programme in Data Sciences (APDS)* is a one-year live online course specially designed for working professionals who are either practising Data Scientists keen on broadening their horizons or executives/entrepreneurs who wish to get adept in the art of mining insights from data using the right tools and techniques.

The programme will introduce participants to the essential tools and techniques with which to handle, manage, analyze and interpret large data sets. The programme is also an opportunity to learn and work on business data in a hands-on fashion.

## WHO SHOULD ENROLL IN THIS PROGRAMME?

This programme is designed for working professionals who have a passion for data, so that they can explore the world of data sciences and assimilate valuable learning without having to take a break from their current jobs.

Those in the following roles will particularly find this programme immensely beneficial:

**Professionals who need to handle and interpret data • Data Scientists • Business Analysts  
• Executives keen on pursuing a career in Data Sciences • Functional Specialists and General  
Managers keen on implementing data-driven decision-making**

## ELIGIBILITY CRITERIA FOR APPLICATION

**Employed/self-employed professionals with at least a bachelor's degree (10+2+3) in any discipline with minimum 50% marks in their bachelor's or master's programme AND work experience of at least three years**

Knowledge of Programming is not essential, but applicants must have a basic understanding of Mathematics and Statistics.

Please note that application does not guarantee admission. IIM Calcutta reserves the right to select candidates. Importance will be accorded to the applicant's professional background and motivation based on the application form submitted.



## ABOUT IIM CALCUTTA

The Indian Institute of Management Calcutta (IIMC) was established as the first national institute for Post-Graduate studies and Research in Management by the Government of India in November 1961 in collaboration with Alfred P. Sloan School of Management (MIT), the Government of West Bengal, The Ford Foundation and Indian industry. Over the past four decades, IIM Calcutta has blossomed into one of Asia Pacific region's premier business schools and amongst the top 3 business schools in India. IIM Calcutta is the first triple accredited management school from India and one amongst 86 such business schools globally to have accreditation from Association to Advance Collegiate Schools of Business (AACSB), EFMD Quality Improvement System (EQUIS) and Association of MBAs (AMBA). It has been playing a pioneering role in professionalizing Indian management through its Post Graduate and Doctoral level programme, Executive Training Programmes, Research and Consulting Activities. Today, IIM Calcutta attracts the best talent in India - a melting pot of academia, industry and research. The best and brightest young men and women pursue its academic programmes. The main thrust of training is to imbibe a sense of strategic outlook to management problems in the students. The emphasis, therefore, is on management as an integrated process and requires the students to develop a global view of economic, technological, cultural and political environment of the business. IIMC has a very strong alumni base, which makes it unique among the top management institutes of the world. IIMC alumni are occupying leadership positions as corporate managers, academicians and successful entrepreneurs, worldwide. The alumni maintain a close relation with the institute, helping each other in their growth.

## ABOUT THE PROGRAMME DIRECTORS

The programme has been designed by two eminent scholars of the institute. They will also deliver lectures during the programme in association with other faculty members of the institute.

### Professor Debashis Saha



Dr. Debashis Saha is a Professor in MIS Group & Computer Science Area at the Indian Institute of Management Calcutta since 2004. He is a Ph.D. in Computer Communication & Networks

from the Indian Institute of Technology Kharagpur. He was awarded the Best Research Paper award of Technology and Innovation Management (TIM) Division in the Academy of Management annual conference (AOM 2020).

His broad area of research interest includes Digital Business Transformation Digital Ecosystem, IoT, Industry 4.0, Technoeconomics of ICT, 4G/5G Network Operations, Management & Security, ICT for Development, WDM Optical Networks, Protocol Engineering etc. Prof Saha is recipient of 'Class of 1992-27 Forever Chair Professorship' Award instituted by the alumni of the PGP 27th batch at IIM Calcutta.

### Professor Sumanta Basu



Dr. Sumanta Basu holds a doctoral degree from IIM Ahmedabad and has six years of industry experience in the Manufacturing sector and IT Consulting. His academic experience comprises of 12

years of management teaching at IIM Calcutta and as a visiting faculty in six other IIMs. His primary research areas include areas in Heuristics and Meta-Heuristics, Operations and Supply Chain Management, Risk Management and Uncertainty as well as Pricing and Revenue Management.

He holds multiple US patents in process improvement and publishes in leading scholarly journals. He is also involved in multiple management development programmes / consulting activities associated with the Govt. of India and leading private sector organizations.



# PROGRAMME COVERAGE

1. **Understanding Data Science**
2. **Mathematics for Data Science**
3. **Statistics for Data Science**
4. **Data Management and Data warehousing**
5. **Machine Learning with Python**
6. **Data Interpretation, Visualization, and Analysis**
7. **Econometrics with R**
8. **Stochastic Process and Simulation**
9. **Categorical Data Analysis**
10. **Business Intelligence with Data Analytics**
11. **Big Data Storage and Analytics**
12. **Advanced Topics in Data Science (Text Mining, IoT, Deep Learning, Industry 4.0, etc.)**
13. **Project in Data Science**

*Note: The above list is indicative and the suggested sequence/topics may be modified by the institute within the total programme hours. While participants will be able to apply the knowledge gained to their respective functions, the programme does not cover specific functional applications (e.g., Finance, Operations, Marketing, etc.).*



# HOW DO PARTICIPANTS ATTEND LECTURES?

This twelve-month programme will be primarily delivered through live online video lectures that participants will be able to access over the Internet on their desktop/laptop irrespective of their location.

## LIVE ONLINE SESSIONS

IIM Calcutta professors will deliver these lectures live from the institute and participants will be able to interact with them virtually.

Session Schedule: Sundays (9.30 AM to 12.30 PM) and select Wednesdays (6:30 PM to 9.30 PM)

## CAMPUS IMMERSION

Participants will visit the IIM Calcutta campus twice during the programme. Each visit will entail five days of on-campus learning.

Campus immersion is a great opportunity for participants to interact face-to-face with the professors as well as cohorts in enriching discussions and classroom learning. Participation in these campus modules (total ten days) is mandatory for certification.

*The campus visits are subject to government and institute guidelines prevailing at the time. If one or both the campus visits have to be cancelled by the institute due to unavoidable circumstances, the equivalent number of lecture hours will be delivered through the online mode. However, if the campus visits are conducted, participation will be mandatory for certification.*

## METHODOLOGY

The sessions are designed to be highly interactive and participative even when they are virtual. The programme will combine theory with practical inputs, real-life case studies, assignments, project and campus visit. Participants will often be expected to engage in discussions to bring out the nuances of real-life practices and challenges. Participants will be required to create small teams and pursue business related specialised or comprehensive projects with IIMC faculty serving as guides to expand their knowledge base.

## EVALUATION

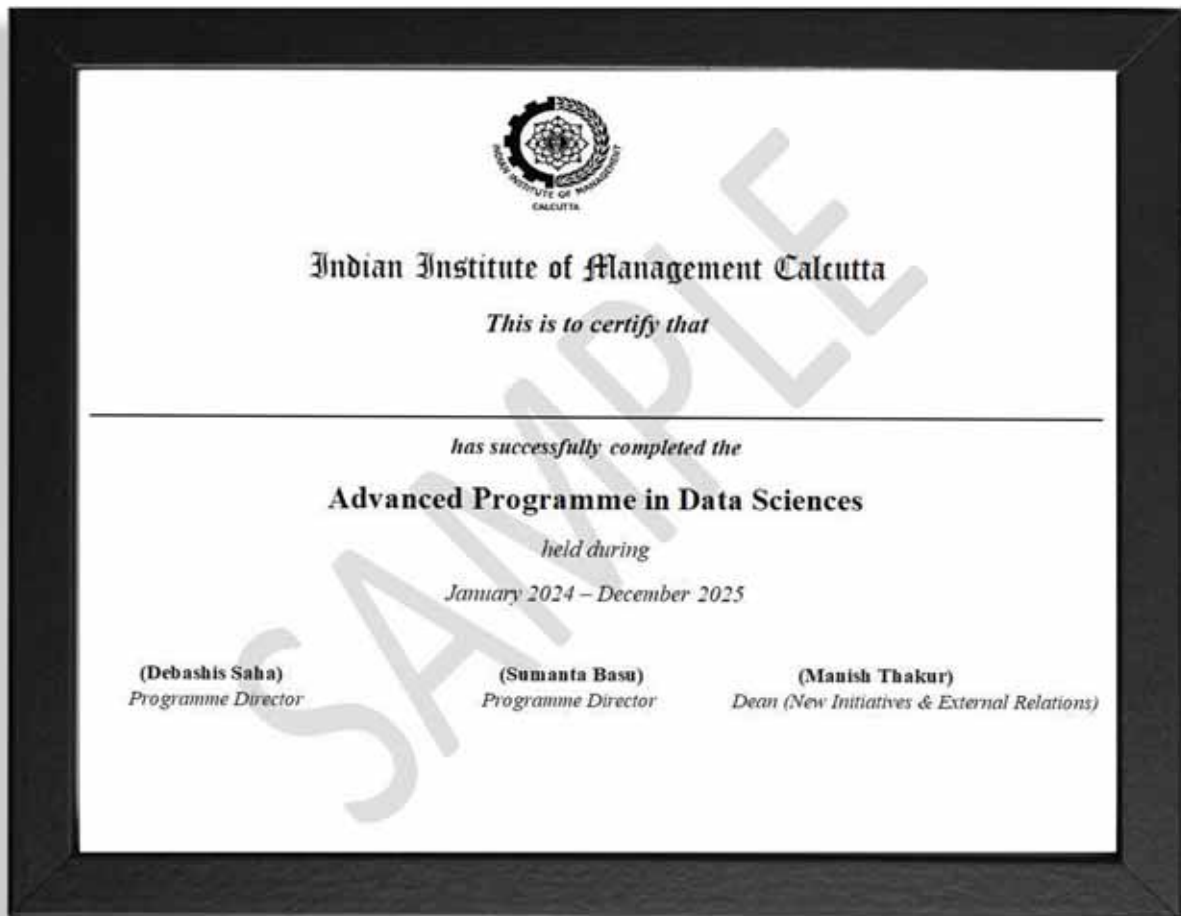
IIMC will periodically evaluate participants using examinations and other evaluation methods required for certification. For candidates to successfully complete the programme, they must:

- a) have at least 75 % attendance overall, and
- b) attend the campus immersion modules, and
- c) receive no more than two 'poor' grades in the whole programme



# CERTIFICATION AND ALUMNI STATUS

On successful completion of the programme (as defined under EVALUATION), participants will receive their certificate of completion from IIM Calcutta. They will also be accorded the prestigious IIM Calcutta Executive Education Alumni status.

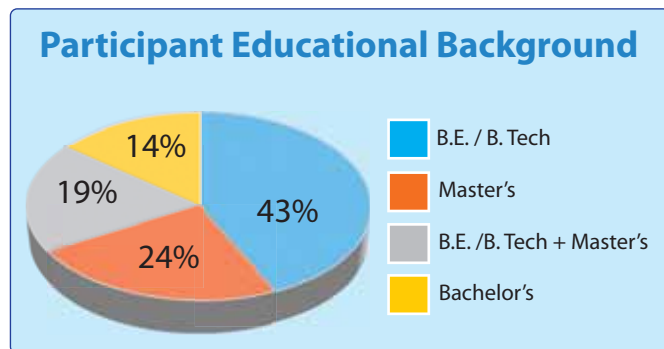
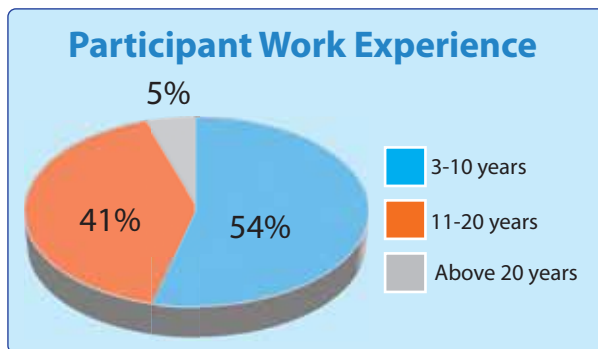


Note: Certificate sample for illustration purposes only. Design subject to change as per sole discretion of the institute.






# PROFILE OF PAST BATCHES




## Industries Represented

 IT/ITES	 FMCG	 Telecommunications
 BFSI	 E-Commerce	 Infrastructure
 Consulting	 Energy	 Education & Training
 Manufacturing	 Automobile	




"Despite my background in data science, I enrolled in APDS and gained significant knowledge and insights. It's a must for anyone in this rapidly evolving field, as it offers a flexible blended-learning approach that lets you grow your data science skills without compromising work commitments."

**Tirtha Roy**  
Program Manager  
*Amazon*




"APDS has given me an extensive understanding of data science and its advanced applications in environmental science. Throughout the course, I've acquired invaluable insights into the diverse applications of data science, delving deep into areas like Machine Learning and Artificial Intelligence."

**Sanchay Gupta**  
Asst. Manager Environment  
*Tata Steel*



"What piqued my curiosity about APDS was that I've been working in data science, business intelligence and HR analytics. I wanted to keep pace with the new developments in these fields. In addition to learning about the most recent algorithms and technologies, the course exposed me to various projects and assignments that helped me gain hands-on experience in data science applications."

**Rupa Bhargava**  
Consultant & Partner  
*KP Global Consulting*



"Data is an invaluable resource, and leveraging it effectively is crucial. APDS offered comprehensive insights into analytics and data science theory, practical applications and essential algorithms. Understanding data science's mathematical and statistical foundations is vital, and IIM Calcutta's expertise in these areas is unmatched."

**Jayanta Biswas**  
Principal Software Engineer  
*Shell India Marketing Pvt. Ltd.*

## WHY ENROLL IN THIS PROGRAMME?

If your job demands that you handle and interpret data, this programme will equip you to excel in that role. If you have a passion for data and want to make a career in data sciences, this programme will prepare you for that foray. If you are someone who is keen on having a data view of various facets of business and wants to build a suitable ecosystem for data-driven decision-making, this programme will help you embark on that journey.

On successful completion of the programme, participants can expect to:

- Have working knowledge of tools and techniques used for handling, managing, analyzing and interpreting data
- Gain insights on data management and analysis, along with the knowledge of various software such as Tableau, SPSS Modeler, Oracle SQL, Python, R, @Risk, Arena, Hadoop, etc.
- Develop acumen towards database management, computation, and information systems with a greater focus on topics such as Data Interpretation, Visualization, and Analysis, Database Management & Data warehousing, Machine Learning, Big Data Storage and Analytics, and Deep Learning
- Get a deeper perspective on quantitative topics such as Statistics for Data Science, Econometrics, Stochastic Processes, and Simulation
- Expand data handling/processing skills to non-commercial applications such as atmospheric science, government, utilities, and agriculture
- Learn from case studies of data science being used in different organizations and solve real-world problems



# ABOUT VCNOW

IIM Calcutta has partnered with VCNOW—a premier Executive Education enabler—for the delivery of this programme. The academic aspects of the programme including certification will be administered by IIM Calcutta. VCNOW will enable the technology platform for programme delivery, and act as a facilitator between the participants and the institute so that the learning experience is seamless, enriching and enjoyable.

VCNOW is trusted by India's premier B-Schools as well as thousands of working professionals who have benefitted from various career-enhancing executive education programmes. VCNOW is also the largest infrastructure based HD-videoconference service provider of India. Its countrywide network of 60+ virtual classroom studios spread across 30 cities, extends the interactive live learning experience from the four walls of institute classrooms to neighbourhoods across the country. Its online learning platform, in the Direct-to-Device (D2D) mode, extends the reach further, making interactive live learning possible on any connected device anywhere.

VCNOW is a brand owned by Unified Collaboration Services LLP.

## PROGRAMME FEES

<b>Application Fee</b>	<b>INR 2,500 + GST</b>	
<b>Programme Fee</b> <i>(inclusive of Campus Fee)</i>	<b>INR 4,80,000 + GST</b> Payable in four installments	<b>Installment 1</b> <i>To be paid</i> within 10 days of issuance of offer letter <b>INR 1,05,000 + GST</b>
		<b>Installment 2</b> <i>Payable by</i> April 10, 2024 <b>INR 1,35,000 + GST</b>
		<b>Installment 3</b> <i>Payable by</i> June 10, 2024 <b>INR 1,05,000 + GST</b>
		<b>Installment 4</b> <i>Payable by</i> August 10, 2024 <b>INR 1,35,000 + GST</b>

### Please note:

- GST is currently 18%. Any additional payment due to change in any of the applicable govt. taxes during the tenure of the programme will have to be borne by the participants.
- All fees (including application fee) are non-refundable.
- Payment of all fees should be made in favour of Unified Collaboration Services LLP. VCNOW is a brand owned by Unified Collaboration Services LLP.

## LOAN ASSISTANCE

Loans from financial institutions are available for pursuing this programme. If you need assistance with availing a loan, connect with Programme Advisors on +91-9289488087 / +91-7835979772 (9 am to 9 pm).



# IMPORTANT DATES

Application Closure Date (last phase): **March 10, 2024**

Programme Commencement: **March 2024**

## HOW TO APPLY

Applications to the programme are accepted only through the online route. Visit the following link to apply online:

[https://iimcalcutta.vcrvcnow.in/apds7/STUDENT-REG/Registration\\_lms.php](https://iimcalcutta.vcrvcnow.in/apds7/STUDENT-REG/Registration_lms.php)

*The application must be complete in all respects including remittance of application fees, uploading of academic and experience related documents and submission of Statement of Purpose (SOP) & Profile. Incomplete applications will not be considered for further processing.*

***In case you need any assistance during the application process or have a query about the programme, please speak to our Senior Academic Advisors on +91-9289488087 / +91-7835979772 (9 am to 9 pm).***



# PROGRAMME IN A SNAPSHOT

IIM Calcutta's

## ADVANCED PROGRAMME IN DATA SCIENCES (APDS)

Batch 7

### DURATION

Twelve months

### MODE

Live lectures on video (attend from anywhere)  
+ 10 days of on-campus learning

### WHO SHOULD ENROLL?

Professionals who need to handle and interpret data  
• Data Scientists • Business Analysts • Executives keen on pursuing a career in Data Sciences • Functional Specialists and General Managers keen on implementing data-driven decision-making

### ELIGIBILITY CRITERIA

Employed/self-employed professionals with at least a bachelor's degree (10+2+3) in any discipline with minimum 50% marks AND work experience of at least 3 years

### PROGRAMME DIRECTORS

Prof. Debashis Saha & Prof. Sumanta Basu  
IIM Calcutta

### PROGRAMME PARTNER

VCNow  
Brand owned by Unified Collaboration Services LLP

### FEES

Application Fee: INR 2,500 + GST  
Programme Fee: INR 4,80,000 + GST

### IMPORTANT DATES

Application Closure Date (last phase): Mar. 10, 2024  
Programme Commencement: March 2024

### CONTACT DETAILS

Senior Academic Advisors (9 am to 9 pm)  
+91-9298488087 /+91-7835979772

### APPLY ONLINE

[https://iimcalcutta.vcrvcnow.in/apds7/STUDENT-REG/Registration\\_lms.php](https://iimcalcutta.vcrvcnow.in/apds7/STUDENT-REG/Registration_lms.php)



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