



शैक्षिक प्रसार
Educational Outreach



Centre for
Machine
Intelligence &
Data Science
C-MInDS • IIT Bombay



e-POSTGRADUATE DIPLOMA IN

ARTIFICIAL INTELLIGENCE AND DATA SCIENCE

- DESIGNED AND DELIVERED BY IIT BOMBAY FACULTY
- IIT BOMBAY DIPLOMA CERTIFICATE
- INDUSTRY-FOCUSED CURRICULUM
- IIT BOMBAY ALUMNI STATUS

ePGD offered by Centre for Machine Intelligence and Data Science (C-MInDS), IIT Bombay



ABOUT THE e-POSTGRADUATE DIPLOMA

The **e-Postgraduate Diploma (ePGD)** in **Artificial Intelligence and Data Science** from IIT Bombay provides professionals with advanced AI and Data Science expertise through a comprehensive, six course curriculum. Designed and delivered by IIT Bombay's renowned faculty, this synchronous ePGD builds a solid foundation in Data Science, followed by in-depth exploration of advanced topics such as Machine Learning (ML), Deep Learning, Generative AI, and Natural Language Processing (NLP). With a strong emphasis on hands-on learning, the curriculum includes practical assessments to reinforce key concepts. The ePGD also includes in-person final exams on the IIT Bombay campus. As a credit-bearing diploma, the ePGD requires the candidates to successfully complete 36 credits that can be saved in the Academic Bank of Credits (ABC).



1

IIT BOMBAY CREDITS

Earn up to 36 Credits from IIT Bombay, which can be saved in the Academic Bank of Credits (ABC)

2

DELIVERED BY IIT BOMBAY

Designed and delivered by IIT Bombay faculty

3

GRADUATION AT IIT BOMBAY

In-person graduation ceremony at IIT Bombay campus

4

ALUMNI STATUS

IIT Bombay alumni status

5

LATERAL HIRING

Access to IIT Bombay's Lateral Hiring Group

e-POSTGRADUATE DIPLOMA HIGHLIGHTS



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Designed and delivered
by IIT Bombay faculty



Earn IIT Bombay
credits which can be
saved in the Academic
Bank of Credits (ABC)



Online synchronous
6-course curriculum
designed for working
professionals



Participate in
peer-to-peer learning
and expand your
professional network



Hands-on
learning through
industry-relevant tools



In-person graduation
ceremony at IIT
Bombay campus



Academic support
for prompt query
resolution



IIT Bombay
alumni status



Personalised
assistance with a
dedicated Programme
Manager



Access to IIT Bombay's
Lateral Hiring Group

Early and mid-career professionals aiming to gain a competitive edge and advance their career in AI, Machine Learning and Data Science.

KEY LEARNING OUTCOMES



LEARN FROM IIT BOMBAY FACULTY



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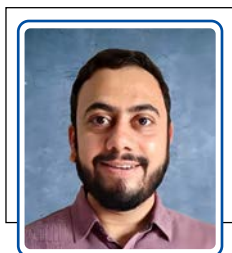
BIPLAB BANERJEE

Associate Professor

Centre of Studies in Resources Engineering (CSRE)

Ph.D. | IIT Bombay

Research Interests: Computer Vision, Image Processing, Satellite Image Analysis, Deep Learning, Advanced Machine Learning



SUDEEP BAPAT

Assistant Professor

SJM School of Management

Ph.D. | University of Connecticut

Research Interests: Sequential Analysis, Change Point Detection, Time Series, Statistical Inference, Linear Models, Survival Analysis



PUSHPAK BHATTACHARYYA

Professor

Department of Computer Science and Engineering

Ph.D. | IIT Bombay

Research Interests: Machine Learning and AI Algorithms, Natural Language Processing, Text Analytics and Search



ABIR DE

Assistant Professor

Department of Computer Science and Engineering

Ph.D. | IIT Kharagpur

Research Interests: AI and Society, Social Networks, Machine Learning



VINAY KULKARNI

Adjunct Professor

Centre for Machine Learning and Data Science (C-MInDS)

Ph.D. | IIT Bombay

Research Interests: Big Data Technologies and Engineering Applications of Machine Learning and AI



GOPALAKRISHNAN SHIVASUBRAMANIAN

Associate Professor

Department of Mechanical Engineering, IIT Bombay

Ph.D. | University of Massachusetts - Amherst

Research Interests: Numerical Methods, Computational & Geophysical Fluid Dynamics, Higher Order Methods, Parallel Algorithms for CFD, Computing

Note: This is an indicative list of faculty and is under the purview of IIT Bombay

e-POSTGRADUATE DIPLOMA CURRICULUM



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This e-Postgraduate Diploma requires candidates to successfully complete 36 IIT Bombay credits through a mix of mandatory and elective courses. The courses offered are:

Programming for ML and Data Science

In this course, you will develop programming skills with Python and apply them for data exploration, visualization and pre-processing. You will use Python to explore Machine Learning concepts, and apply them to build and evaluate models with suitable metrics. Additionally, you will learn Feature Engineering, and understand data handling across different scales.

Topics Covered:

- Databases Management Systems and SQL / NoSQL
- Big Data Technology and Tools
- Cloud Computing and Resources
- Programming and Python Essentials
- Introduction To ML via examples (Regression, Clustering, and Classification)
- Interpreting ML Outcomes - Introduction To Metrics
- Introduction to the Data Pipeline
- Data Sourcing, Exploration, Visualization, and Pre-Processing
- Feature Creation and Encoding Methods (Images, Text, Audio/Video)
- Tools and Techniques for Dealing with Data at Various Sizes and Scales
- Introduction to Model Deployment and Management

Statistical Foundations of Machine Learning

In this course, you will learn the fundamental statistical concepts, develop skills in data analysis and interpretation through graphs and summary measures, understand probability, probability distributions, estimation, testing of hypotheses, basics of matrix theory and regression analysis. You'll also gain experience to apply these concepts in practical applications and in communicating statistical findings.

Topics Covered:

- Descriptive Statistics
- Probability, Distributions, and Moments
- Multivariate Probability and Statistics
- Estimation
- Hypothesis Testing
- Optimisation
- Matrices and SVD
- Hands-On Examples

Machine Learning

In this course, you will learn various Machine Learning techniques, including linear regression, classification models, decision trees, ensemble methods, and clustering algorithms. Additionally, you will explore advanced topics such as neural networks, deep neural networks, and generative models.

Topics Covered:

- Linear Regression and Bias Variance Tradeoff
- Overfitting and Regularization
- Linear Classification Models
- Decision Trees
- Ensemble Methods
- Kernel Methods
- Support Vector Machines
- Dimension Reduction, PCA
- Clustering Algorithms
- Intro Neural Networks
- Graphical Models

Deep Learning and GenAI

In this course, you will learn the essentials of deep learning, including building and training neural networks, and delve into Generative AI frameworks, transformer models and large language models (LLMs). Additionally, you'll explore practical applications of Generative AI in text, images, and code and gain skills in fine-tuning pre-trained large language models for diverse use cases.

Topics Covered:

- Deep Learning Essentials: Neural Networks and Deep Learning Concepts, Building and Training Neural Networks (TensorFlow/Keras Or PyTorch)
- Generative AI Framework, Transformer Models, Large Language Models
- Gen AI Use Cases: Text, Images, Code
- Fine-Tuning: Fine-Tuning Pre-Trained LLMs for Variety of Applications, Trade-Offs



AI-ML in Practice

In this course, you will learn to deploy and scale models on cloud platforms using Docker and Kubernetes and apply transfer learning and fine-tuning techniques. Additionally, you'll explore ensemble methods like bagging and boosting, and analyse case studies from various industries such as healthcare, finance, and e-commerce. You will also work on a Capstone Project which will offer you an opportunity to apply the knowledge and skills acquired throughout the curriculum to a real-world problem in a structured manner.

Topics Covered:

- Model Deployment and Scaling: Deploying Models on Cloud Platforms (e.g., AWS, Azure), Model Versioning and Serving with Docker and Kubernetes
- Transfer Learning and Fine-Tuning: Leveraging Pre-Trained Models, Fine-Tuning Models for Custom Applications
- Ensemble Techniques: Bagging and Boosting Algorithms, Building Ensemble Models for Improved Performance
- Case Studies from Specific Industries (Healthcare, Finance, E-Commerce and Other Domains)
- A Term-long Project Where Learners Will Grapple With An Open-ended Problem, And Present Their Solutions

Elective Courses

Elective courses will be offered in specific areas of artificial intelligence and Data Science. You can select any elective of your choice. Some of the areas covered in these courses are Natural Language Processing (NLP), Internet of Things (IoT), and Machine Learning (ML) for various applications such as Computer Vision, Finance, Speech Processing, Manufacturing, etc.



Note: Curriculum review and changes are under purview of IIT Bombay and would be undertaken from time to time to ensure the curriculum coverage is in line with industry requirements.

SAMPLE PROJECTS



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Analyse Consumer
Behaviour Using
Survey Data



Identify Related Stocks
Based on Stock Market
Activity



Predict House Prices
Based on Location and
Features



Build Business
Applications Using
Language Models



Predict Credit
Card Default



Computer Vision

LANGUAGES AND TOOLS COVERED



Transformers



and many more

Note: Languages and tools used are under the purview of the faculty and a thorough review would be undertaken from time to time to ensure the curriculum coverage is in line with industry requirements.

ELIGIBILITY CRITERIA

The eligibility criteria for the e-Postgraduate Diploma in Artificial Intelligence and Data Science are as follows:

- The minimum requirement to apply for ePGD is either a recognised 4-year undergraduate degree or a recognised 3-year undergraduate degree with at least one year of work experience. Post-graduate and doctorate students can also apply.
- Understanding of Mathematics and Statistics at the undergraduate level.

SELECTION PROCESS

Step 01

Application

Interested candidates can apply for e-Postgraduate Diploma by filling out a simple online application form.

Step 02

Online Test and Screening

Applicants must take an online test to assess their foundational knowledge and suitability for the ePGD. After completing the online test, applicants will go through a mandatory screening call with the Registration Office.

Step 03

Offer of Registration

The selected candidates will receive an offer letter to join ePGD. They will need to pay the registration fee to secure their seat and complete the registration.

IMPORTANT DATES



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Registration Window	Orientation	Classes Begin
30 TH SEPTEMBER 2024 TO EARLY JANUARY 2025	JANUARY 2025	JANUARY 2025

FEE STRUCTURE

REGISTRATION FEE	₹60,000	(To be paid within 7 days after receiving the offer letter to confirm the registration)
FEE FOR 1 ST COURSE	₹90,000	(To be paid at the beginning of 1 st course)
FEE FOR 2 ND COURSE	₹90,000	(To be paid at the beginning of 2 nd course)
FEE FOR 3 RD COURSE	₹90,000	(To be paid at the beginning of 3 rd course)
FEE FOR 4 TH COURSE	₹90,000	(To be paid at the beginning of 4 th course)
FEE FOR 5 TH COURSE	₹90,000	(To be paid at the beginning of 5 th course)
FEE FOR 6 TH COURSE	₹90,000	(To be paid at the beginning of 6 th course)

For more details on flexible fee payments, please get in touch with the Registration Team.

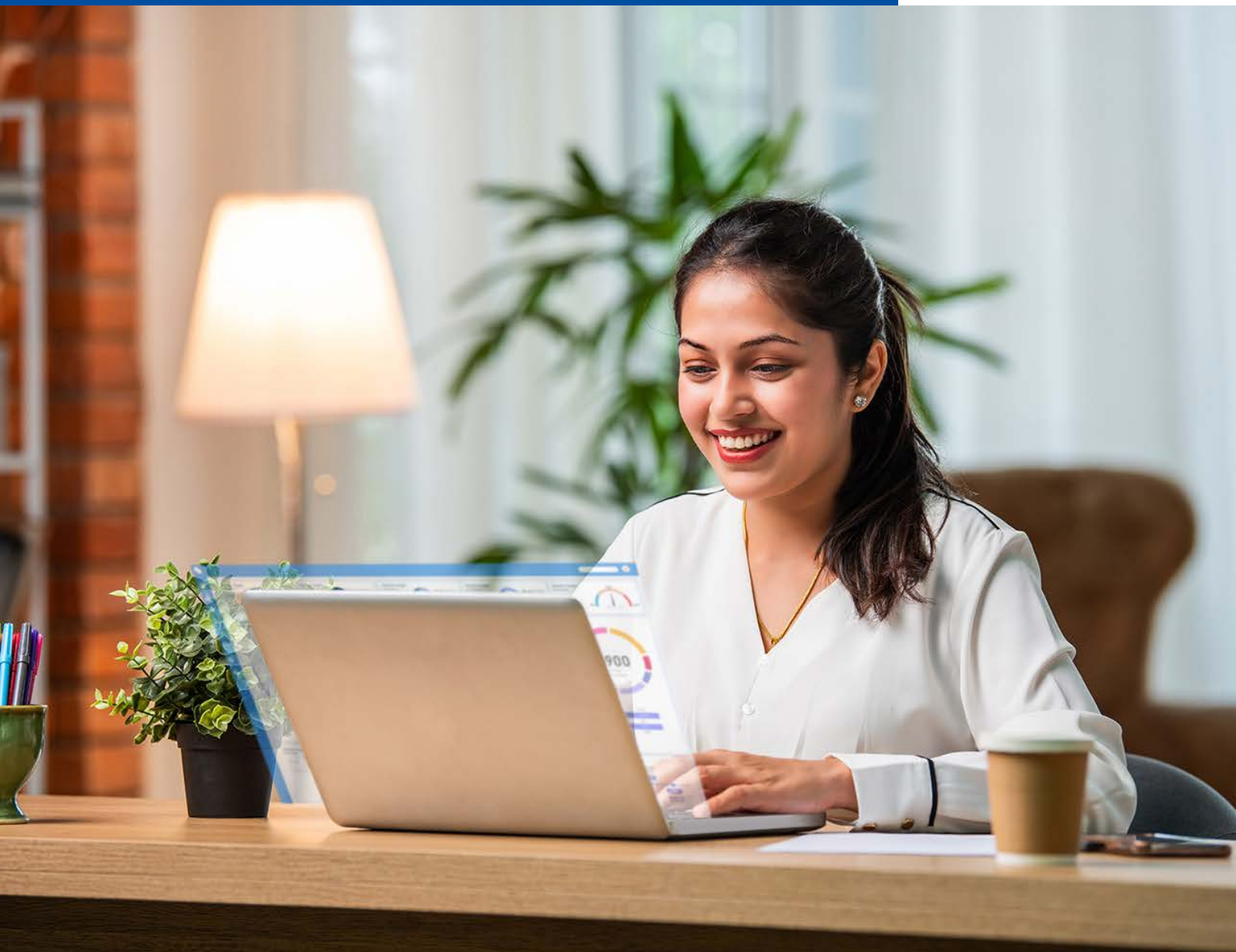
Note: Multiple courses will be offered simultaneously for the ePGD candidates. Total fees can be paid accordingly.

FINANCIAL ASSISTANCE



***Conditions apply.** The Financial Assistance options are available through Great Learning.
Please reach out to the admissions office at 080 4718-8428 for more details.

READY TO ADVANCE YOUR CAREER?



CONTACT US

✉ iitb_epgd.ai_ds@greatlearning.in | epgd.ai-ds@eo.iitb.ac.in

☎ 080 4680 1702

APPLY NOW

