IITM PRAVARTAK
CATALYSING INNOVATION

Advanced Certificate Programme in

Applied Artificial Intelligence and Machine Learning

Harness the Power of Technology to Accelerate Your Career

11 Months | Online + Live Sessions | Optional 2-Day Campus Immersion

IIT Madras Faculty–Led Teaching

IBM

Programme Summary

Advanced Certificate Programme in Applied Artificial Intelligence and Machine Learning

Institute Name
IITM Pravartak

Programme Duration
11 Months

Cost
INR 1,50,000 + GST

IIT Faculty
Prof C. Chandra Sekhar (HoD 2019-22, CSE Dept., IITM) and Dr.Dileep A.D. (HoD, CSE Dept., IITDh)

Led by IIT Madras Faculty
Designed & led by senior IIT Madras faculty

IIT Madras Faculty Pedagogy
Live masterclasses and weekly recorded lectures by IIT faculty

Industry Expert (IE) Sessions
Weekly live sessions by top AI and ML industry experts

Weekly Effort
9-10 hours/week
(additional effort required for non-technical students)

Eligibility
Graduate or diploma holder (10+2+3); Basic Math & coding knowledge preferred

Campus Immersion
Two-day optional campus immersion event at IIT Madras Research Park

IITM Pravartak Certification
Verified digital certificate from IITM Pravartak upon successful programme completion

IBM Certifications
3 certificates from IBM on PyTorch, TensorFlow and Chatbot Building; IBM masterclasses

Unique Programme Taught by Award-Winning IIT Faculties

- **Unique Programme Design**: Taught by globally renowned IIT faculties who are experts in AI and ML, and by top industry experts
- **In-Depth Teaching from IIT Faculty**: Live masterclasses and weekly recorded videos by IIT faculties supplemented with weekly live sessions by industry experts
- **30+ Years of Teaching Experience**: Faculties are experts in speech technology, computer vision, machine learning, deep learning and pattern recognition

Learning Experience

- **Pre-Recorded Videos - Flexibility -** Learn at your own pace, fitting around your schedule
- **Virtual Integrated Labs -** Access cutting edge virtual labs for real world simulation and hands on learning
- **Live Interactions with IEs -** Learn tools, applications and resolve doubts in weekly live sessions by industry experts

Frequently Asked Questions

How is the programme teaching split between IIT faculty and industry experts?

This programme is taught by both IIT faculty and industry experts. Weekly recorded videos are by IIT Madras and IIT Dharwad faculty, and weekly live sessions are taken by industry experts. IIT faculty will additionally be conducting several live masterclasses across the duration of the program. A few modules in the program including introductory topics such as SQL, Python, EDA are taught solely by industry experts through recorded videos and live sessions.

What is the role of the Industry Experts? Are they institute faculty?

Industry experts will conduct live sessions, help with doubt clearing, cover specific topics deeper and share real-world examples wherever needed. They are not faculty of the Institute.

Who grades/gives inputs on the assignments and projects?

The grading frameworks for assignments are developed in partnership with industry experts and the Emeritus grading team.

Is there a qualifying mark/grade to get the final certification in this programme?

Yes, the qualifying mark is 70%.

What if I miss the assignments for a particular week? Can I attempt them later?

If you miss an assignments for a particular week, you can complete them anytime before the programme concludes. We provide flexibility for you to catch up and submit assignments at your convenience within the programme's duration.

Who are the faculty for the LIVE masterclass/online sessions/doubt clearing sessions?

Masterclasses are conducted by IIT Madras faculty. Doubt-clearing sessions are carried out by the industry experts, as they monitor individual student progress.

What if I don't find the programme appropriate for me after starting the sessions? Can I seek a refund?

We encourage participants to complete the programme to fully understand the concepts and derive valuable learning outcomes. Should you still feel the need to stop your learning journey, a refund request can be initiated before the programme commences. However, after the programme commences, the fee becomes non-refundable.

For how long will I have access to the learning materials?

You will have access to the online learning platform and all the videos and programme materials for 12 months following the programme end date. Access to the learning platform is restricted to registered participants per the terms of the agreement.

Leverage AI and ML for a High-Growth Career

Teraflop computing, scalable infrastructure, and gigabit internet have unlocked numerous AI applications for organisations and consumers.

25%-35% growth

compounded annual growth rate in the AI market. NASSCOM and BCG have also made projections and expect exponential growth in the AI market to reach **$17 billion by 2027.**

BUT

2,13,000 positions remain vacant

India has a **51%** demand-supply gap in AI and ML talent, with a demand of **629,000 professionals and a supply of 416,000.**

NASSCOM, 2023

The top skill sets that AI employers are looking for:

- Machine Learning
- Natural Language Processing
- Neural Networks
- Analytics and Pattern Recognition
- Generative AI

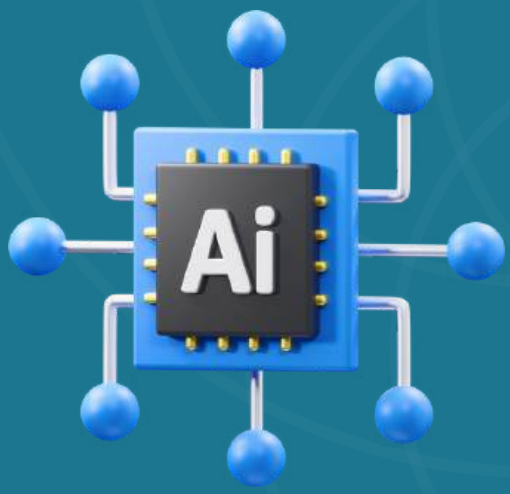
Source: PTI

As an aspiring professional, you can now gain cutting-edge AI skills with the **Advanced Certificate Programme in Applied Artificial Intelligence and Machine Learning by IITM Pravartak**, setting the foundation for a successful and rewarding career.

10X Opportunities in AI and ML by 2028

87% of Indian organisations are likely to boost their annual AI spending by over 10% in the next three years.

94% of AI adopters are likely to increase their use of AI and ML applications in the next three years.



Source: NASSCOM, 2023

The talent supply-demand gap presents a significant opportunity for early-to-senior professionals across industries to transition into AI and ML roles in the coming years.

Acquiring AI and ML Skills Can Result in 4X Growth in Salaries

Source: Glassdoor
These salary figures are for a similar work experience bracket.

Deloitte. IBM intel
amazon LinkedIn tcs TATA CONSULTANCY SERVICES

Salaries for AI roles in India are among the highest in the country. Your salary will vary based on your skills, experience, and the city where you work.

Accelerate Your AI and ML Career with Expertise from Globally Renowned IIT Faculty

Imagine a world sculpted by intelligence. A world where algorithms predict, machines learn, and innovation knows no bounds. This is the world of Artificial Intelligence and Machine Learning.

The Advanced Certificate Programme in Applied AI and ML by IITM Pravartak offers a gateway to the forefront of technological innovation. Designed by distinguished faculty from IIT Madras and IIT Dharwad, this rigorous programme equips aspiring individuals with the expertise to become industry-ready AI and ML professionals.

- **IITM Pravartak:** A technological innovation hub funded by the Department of Science and Technology, GoI, preparing young India for next-gen world-class technology through its rigorous curriculum, equipping them with the foundational knowledge and state-of-the-art techniques in AI and ML.

- **Emeritus:** A global leader in online education, Emeritus ensures a seamless learning experience with world-class instructional design and support services.

- **IBM:** As a global technology leader, IBM brings its industry expertise and cutting-edge tools to provide real-world insights and practical applications.

Who Can Benefit from This Programme?

This programme is designed for professionals seeking to harness the power of AI and ML to drive innovation and solve complex problems. Whether you're a technical professional looking to deepen your expertise or a non-technical leader aiming to understand AI's potential, this programme is tailored to your needs.

Specifically, this programme is ideal for:

Data scientists and data analysts: Looking to advance their skills in cutting-edge AI and ML techniques and tools

Software engineers: Seeking to transition into AI and ML roles or enhance their existing projects with AI capabilities

Business analysts and consultants: Aiming to leverage AI to drive data-driven insights and decision-making

Product managers and product owners: Interested in incorporating AI and ML into product development and strategy

Executives and leaders: Aspiring to understand the strategic implications of AI and ML

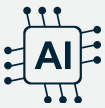
By the end of this programme, you'll be equipped to:

- Lead AI/ML initiatives: Drive innovation and solve complex business problems
- Make data-driven decisions: Use AI to extract meaningful insights from data
- Collaborate with AI/ML teams: Effectively communicate with data scientists and engineers
- Stay ahead of the curve: Keep up with the latest advancements in AI and ML

Elevate Your Career with AI and ML

Future leaders are increasingly expected to leverage artificial intelligence(AI) to prepare their organisations for challenges and opportunities. This involves not only understanding AI's potential but also strategically integrating it into the organisation.

With this programme, you can:



Launch your career cutting-edge AI and ML insights
Get insights from top IIT faculty and leading researchers on cutting-edge topics such as speech technology, computer vision, machine learning, deep learning, and pattern recognition

Learn under the expertise of HoDs of Computer Science Engineering Department
Learn from Prof C. Chandra Sekhar, HoD of the CSE Department (2019-22) at IIT Madras and Prof Dileep A.D., HoD of CSE Department at IIT Dharwad

Gain an edge with IBM certifications for global recognition
Earn three technical certifications from IBM on Tensorflow, Chatbot building and PyTorch. Attend masterclasses by IBM experts on the latest tools and trends

Get the advantage of the highest number of tools and libraries across AI and ML programmes*
Master practical skills with more than 35 latest tools and libraries such as TensorFlow, Keras, Scikit-Learn and the latest Gen AI models such as Mistral, Phi and Solar

Kickstart your GitHub portfolio building, leveraging Kaggle & latest research papers
Get started on GitHub and Kaggle through programme projects. Attend live sessions on the latest AI and ML research papers

Leverage Flexible Learning with a Blended Learning Model
Balance work and studies with our blended learning approach, combining recorded video content with live interactive sessions

**Highest number of tools and libraries among educators offering AI and ML technical certificate programmes.*

Create real-world impact through a two-week Capstone Project
Apply your learning to solve complex industry problems through a comprehensive capstone project

Get the prestigious IITM Pravartak certification
Earn a prestigious, industry-recognised certificate from the IITM Pravartak, which is the digital innovation hub of a leading engineering institution in India

Participate in a two-day optional immersion at IIT Madras Research Park
Seize the chance to visit the IIT Madras Research Park, connect with like-minded AI and ML enthusiasts, and expand your network

Get empowered by Emeritus Career Services and IIMJobs Pro Membership
Enhance your career prospects with Emeritus Career Services and an IIMJobs Pro membership

Learn AI and ML from Renowned IIT Faculties

Prof. C. Chandra Sekhar

Programme Coordinator
Professor at IIT Madras (2001-Present)

Professor C. Chandra Sekhar is a distinguished faculty member in the Department of Computer Science and Engineering at IIT Madras. He was the Head of Department of the CSE Department at IIT Madras from 2019 to 2022. His expertise spans speech recognition, neural networks, kernel methods, machine learning, deep learning, and metric learning. A highly respected researcher, Prof. Sekhar has authored numerous papers featured in prestigious national and international peer-reviewed journals.

Publications:

- **IEEE International Conference on Image Processing:** “Multi-Modal Hierarchical Attention-Based Dense Video Captioning”

- **Advanced Concepts for Intelligent Vision Systems - 21st International Conference**: “Descriptive and Coherent Paragraph Generation for Image Paragraph Captioning Using Vision Transformer and Post-processing”

- **IEEE Transactions on Neural Networks and Learning Systems**: “GMM based intermediate matching kernel for classification of varying length patterns of long duration speech using support vector machines”

Learn AI and ML from Renowned IIT Faculties

Prof. Dileep A. D.

Programme Faculty
HoD of CSE Dept, IIT Dharwad

Dr. Dileep A. D. is the Head of Department of Computer Science and Engineering at IIT Dharwad. He has 10+ years of teaching experience across institutions like IIT Madras, IIT Mandi, and IIT Dharwad. He is widely recognised for his expertise in pattern recognition, kernel methods, machine learning, speech technology, and computer vision. He earned both his M.Tech and PhD in Computer Science and Engineering from IIT Madras, Chennai. A prolific researcher, Dr. Dileep has contributed extensively to the field, with numerous publications in prestigious peer-reviewed journals.

Publications:

- **Computer Speech and Language**: "Sparse coding based features for speech units classification"

- **IEEE Transactions on Neural Networks and Learning Systems**: “GMM based intermediate matching kernel for classification of varying length patterns of long duration speech using support vector machines”

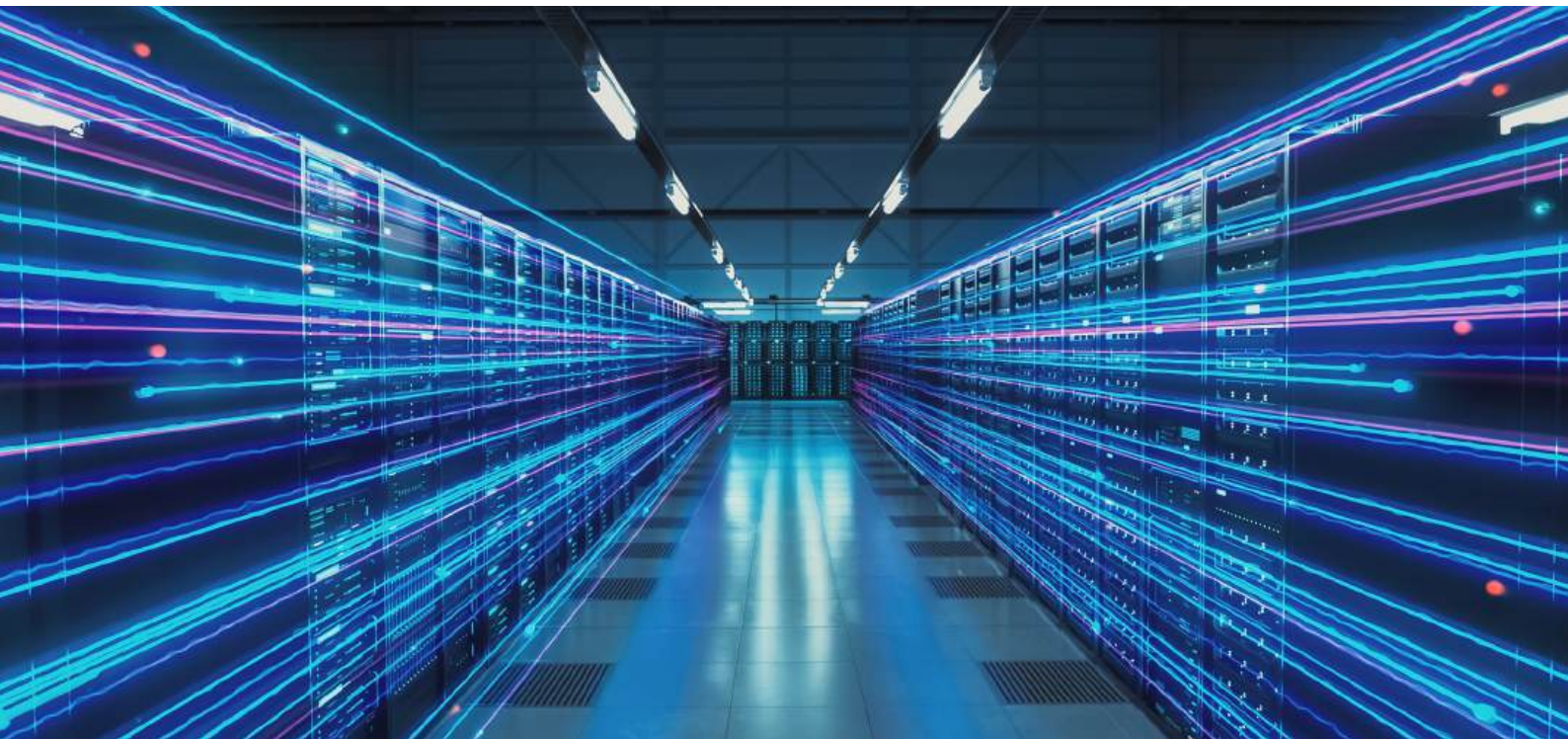
- **Speech Communication**: “Class-specific GMM based intermediate matching kernel for classification of varying length patterns of long duration speech using support vector machines”

The Edge You Need: How is This AI and ML Programme Different?

Programme Features	Advanced Certificate Programme in Applied AI and ML by IITM Pravartak	Other Outdated/Non-Accredited Technical Certificate Programmes
Certification from a top ranked institution	Certification from IITM Pravartak, which is the technology hub of a leading engineering institute	Certification from non-accredited or low ranked institutes
IIT Madras faculty-led teaching	Live masterclasses and weekly recorded videos by top IIT Madras faculty, presenting learners with a unique opportunity to learn directly from IIT faculty	Limited involvement from institute faculty
Depth of AI and ML topics	Focus on deep mathematical concepts needed for AI and ML and in-depth coverage of gen AI and large language models (LLMs) and their use cases in real-world challenges and scenarios	Programmes are designed with a narrow scope and the focus on practical learning with Gen AI and LLM is too little
Professional industry certification	Three IBM professional certifications that instantly add credibility to your resume	Additional certifications are rarely offered and come with add-on costs
Highest number of tools and libraries	Get access to more than 35 most in-demand tools and libraries such as R, Python, NumPy, Matplotlib, and Amazon CloudWatch	Curriculum covering fewer and outdated tools, with no access to masterclasses and little guidance from industry experts/faculty

The Edge You Need: How is This AI and ML Programme Different?

Programme Features	Advanced Certificate Programme in Applied AI and ML by IITM-Pravartak	Other Outdated/Non-Accredited Technical Certificate Programmes
Get started with Kaggle and GitHub portfolio	Learn how to build your own GitHub and Kaggle portfolio to stand apart from the crowd, become industry ready, and solve real world problems	No guidance for personal brand building
Integration of AI and ML masterclasses	Live masterclasses on AI and Generative AI and ML by IITM Faculty, covering applications with practical examples	Curriculum covering only the basics of Gen AI with no live masterclasses
Weekly doubt clearing sessions	Get your doubts solved live by subject matter experts.	Rarely offered
Flexible payment options	Yes	Yes



Elevate Your Career and Deliver Real-World Impact with:

65+hrs of faculty teaching
In addition to industry expert teaching

More than 35
Tools and libraries delivered via virtual integrated labs

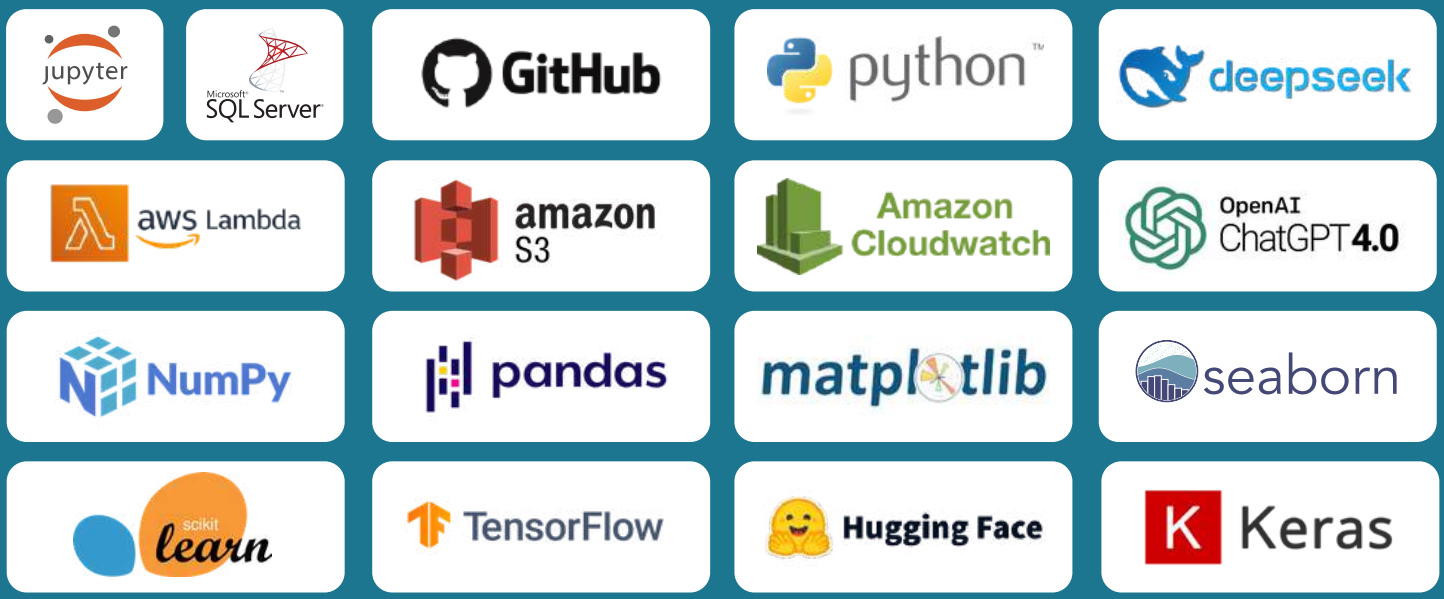
More than 30
Projects and Cases

Two days
Optional campus immersion at IIT Madras Research Park for successful learners

Two-week
Capstone project

Three
IBM Certifications

More Than 35 Practical Tools and Libraries Covered



Note:

- *The brochure highlights only a selection of tools from a more extensive list available.*
- *All product and organisation names are trademarks or registered trademarks of their respective holders, and their use does not imply any affiliation with or endorsement by them.*

DeepSeek in Focus: Stay Ahead in AI Innovation

Stay ahead in the ever-evolving AI landscape with DeepSeek, the latest breakthrough in Generative AI. As part of the IITM Pravartak Applied AI and ML Programme, you will gain first-hand expertise in this cutting-edge model, equipping you with the skills to navigate the next era of AI innovation.

Launched in January 2025, DeepSeek is a powerful generative AI chatbot designed to rival GPT-4, offering advanced capabilities and an open-source framework. The programme delves into the latest advancements in Large Language Models (LLMs), including DeepSeek and ChatGPT, helping you explore the future of AI-driven solutions.

Part 1 Introduction to DeepSeek

- Overview of its capabilities and advancements
- How it compares to existing AI models

Part 2 Market Positioning & Technical Insights

- DeepSeek's role in the AI landscape
- Understanding its open-source structure

Part 3 DeepSeek vs. Other AI Models

- Head-to-head comparison with GPT-4 and its versions
- Unique strengths and differentiators
- Potential business applications

Part 4 Real-World Applications

- Demonstrations on how to leverage DeepSeek for AI development
- Research methodologies for practical AI-driven solutions

Part 5 Hands-On Exploration

- Experimenting with DeepSeek's functionalities
- Developing real-world use cases using the model

Industry-Recognised Certificate from IITM Pravartak

Participants will be awarded a completion certificate on successful completion of the programme.

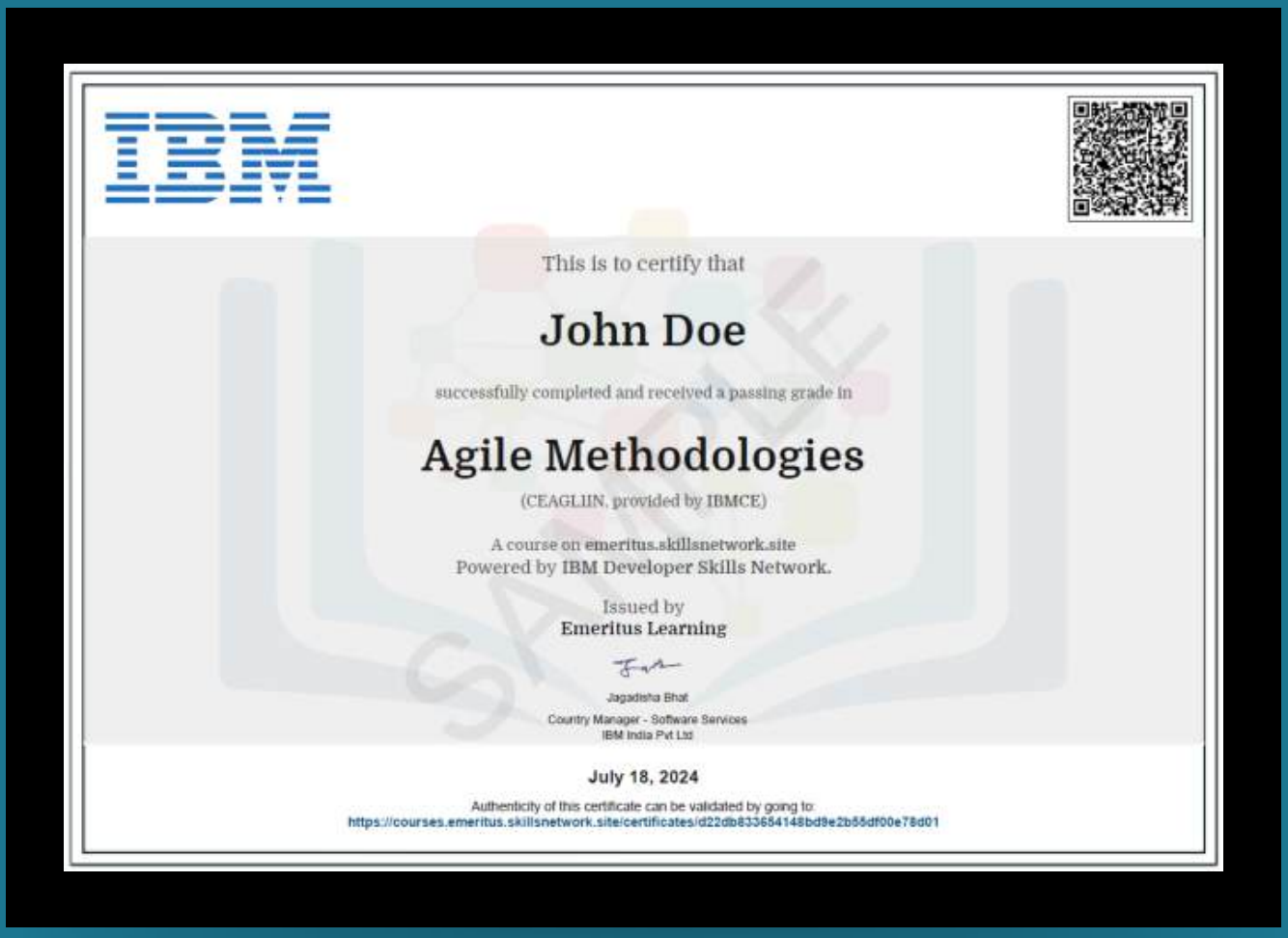
Note:

- *All certificate images are for illustrative purposes only and may be subject to change at the discretion of Indian Institute of Technology Madras Pravartak.*
- *To receive the completion certificate, participants must score a minimum of 70% overall on mandatory assignments and successfully complete the capstone project.*

IBM Certificates

Participants who successfully complete the programme will receive three IBM completion certificates as well as a certificate from IITM Pravartak. They will be certified in the following topics:

1. PyTorch: Tensor, Dataset, and Data Augmentation
2. Deep Learning with TensorFlow
3. Build Your Own Chatbot



Note:

- *All certificate images are for illustrative purposes only and may be subject to change at the discretion of IBM.*

Programme Modules

Taught by IIT Faculties

Taught by Industry Experts

Module 1 Introduction to the Programme

- Overview of topics to be covered in the Programme
- Motivation for the Programme
- Overview of the Programme
- Expected Outcomes of the Programme
- Networking Session and Project Groups
- Brief about software/tools

Module 2 Mathematics Fundamentals

- Linear algebra: Vectors, matrices, inner products, matrix-vector multiplication, eigen values/vectors, singular value decomposition
- Calculus: Differentiation (single/multiple variables, vectors, and matrices), unconstrained and constrained optimisation (Lagrangian multiplier)
- Probability Theory: Discrete and continuous random variables, probability distributions, Bayes' rule, Gaussian density function, conditional probability
- Statistics: Descriptive and inferential statistics, hypothesis testing, probability distributions

Module 3 SQL Fundamentals

- SQL Basics: RDBMS & NoSQL, MS SQL Server & MongoDB demos, SQL tables, joins, subqueries, views, functions, pattern matching, UDFs, stored procedures, ranking, and sorting
- Advanced SQL: Mathematical and date-time functions, SQL ROLLUP, record grouping, common table expressions, clustered indexes
- Data pipeline integration: Integrating ML models into data pipelines

Module 4 Python Fundamentals

- Python: Pre-read
- Python details: Python syntax, factors, NumPy, Scipy, Pandas, Data Visualization, Scikit Learn, Pytorch,Matplolib, Seaborn Tensorflow, Deployment and productionisation
- Advanced python techniques: generators, iterators, decorators, context managers, performance optimisation techniques. Demo on Python tools, python packages, pytorch, scikit learn, tensorflow, demo of deployment on python, demo on advanced python techniques

Module 5 Exploratory Data Analysis

- EDA: Data types and variables, central tendency and dispersion
- Five point summary and skewness, Box-plot, covariance and correlation, encoding, scaling and normalisation.
- Focus on pre-processing, missing values, working with outliers, demo on EDA

Module 6 Applications of AI and ML

- NLP and text processing applications: Text classification, parts-of-speech tagging, named entity recognition, text summarization, text question answering, machine translation. Demo on sentiment analysis, chatbot creation and text-to-text translation
- Image and video processing applications: Image classification, image annotation, image captioning, video classification, video captioning, visual question answering, visual common-sense reasoning
- Speech processing applications: Speech recognition, speaker recognition, speech emotion recognition, spoken language recognition, text-to-speech synthesis, speech-to-speech translation

Module 7 Paradigms of Machine Learning

- Supervised learning
- Unsupervised learning
- Semi-supervised learning
- Active learning
- Self-supervised learning
- Transfer learning
- Domain adaptation, Zero-shot
- One-shot and Few-shot learning; Federated learning

Module 8 Regression Methods

- Linear model for regression
- Supervised learning
- Parameter estimation
- Overfitting
- Regularisation
- Ridge regression

Module 9 Probabilistic Models for Classification

- K-nearest neighbour classifier
- Bayes classifier
- Normal density function
- Decision surfaces
- Naïve Bayes classifier
- Maximum likelihood estimation
- Gaussian mixture model

Module 10 Support Vector Machines for Classification

- Distance of a point to a hyperplane
- Margin of a separating hyperplane
- Hard-margin SVM
- Soft-margin SVM
- Kernel functions
- Multi-class classification using SVMs

Module 11 Dimension Reduction Techniques

- Principal component analysis
- Fisher discriminant analysis

Module 12 Decision Trees

- Construction of decision tree for classification
- Random forest classifier

Module 13 Ensemble Methods

- Bagging
- Boosting
- AdaBoost
- Applications of Ensemble methods

Module 14 Clustering Techniques

- K-Means clustering
- Hierarchical clustering
- Applications of Clustering Techniques

Module 15 Multilayer Feedforward Neural Networks for Classification and Regression

- McCulloch-Pitts neuron
- Perceptron learning rule
- Sigmoidal activation function
- ReLU activation function
- Softmax activation function
- Multilayer feedforward neural network
- Error backpropagation method
- Gradient descent method
- Stochastic gradient descent method
- Stopping criteria, Logistic regression based classifier
- Focus on Deep Learning using Tensorflow and Keras, understanding Feedforward neural network, back propagation, gradient descent and logistic regression

Module 16 Deep Feedforward Neural Networks

- Generalized delta rule
- AdaM based optimizer
- Regularization: Drop-out, Drop-connect, Batch normalization

Module 17 Convolutional Neural Networks

- Basic CNN architecture, Rectilinear Unit (ReLU), 2-D Deep CNNs: LeNet, VGGNet, GoogLeNet, ResNet
- Image classification using 2-D CNNs
- 3-D CNN for video classification
- 1-D CNN for text and audio processing
- Object localization and detection algorithms – YOLO, Image Segmentation, and UNet

Module 18 Recurrent Neural Networks

- Architecture of an RNN, Unfolding an RNN, Backpropagation through time
- Long short-term memory (LSTM) units
- Gated recurrent units
- Bidirectional RNNs
- Deep RNNs

Module 19 Generative Adversarial Networks

- Structure of GAN, types of GAN models, applications of GAN models

Module 20 Transformers

- Attention mechanism
- Transformer architecture
- BERT (Bidirectional Encoder Representations from Transformers)
- ViLBERT
- GPT (Generative Pre-trained Transformer)
- Applications of transformer models

Module 21 Applications of Generative AI

- Applications of Gen AI in different domains
- Examples of prompt engineering, fine tuning and API creation and integration

Module 22 Reinforcement Learning

- Markov Decision Processes (MDPs)
- Q-Learning and Deep Q Networks (DQN)
- Actor-Critic models
- Exploration vs. Exploitation strategies

Module 23 Deployment of MLOps

- Ethical considerations (banking, ecommerce sectors); pushing code to repository
- Responsible AI
- Explainable AI
- Registry, Model & Data Monitoring

Module 24 Cloud Deployment

- Understanding cloud infrastructure essentials
- Cloud-based ML Services and Databases
- Containerization
- Cloud enablement - scalability and flexibility
- Understanding emerging themes: FaaS, Edge Computing
- Federated Learning
- AutoML
- Explainable AI
- Cloud ML-Ops
- Deployment on Gemma models on Vertex AI and Kubernetes engine Scaling using AWS

Module 25 Capstone Project

- The capstone project is a comprehensive, real-world assignment in which participants apply their knowledge and skills to solve industry-specific problems
- It integrates concepts from their coursework, encouraging critical thinking and innovation
- Capstone projects help participants gain hands-on experience, making them industry-ready by demonstrating their ability to tackle complex challenges in a professional setting

IBM Certificate Modules

Certificate 1 — Deep Learning with TensorFlow

- Introduction to TensorFlow
- Convolutional Neural Networks (CNN)
- Recurrent Neural Networks (RNN)
- Unsupervised Learning
- Autoencoders

Certificate 2 — Build Your Own Chatbot

- Introduction to Chatbots
- Working with Intents
- Working with Entities
- Defining the Dialog
- Deploying your Chatbot
- Advanced Concepts – Part 1
- Advanced Concepts – Part 2

Certificate 3 — PyTorch: Tensor, Dataset and Data Augmentation

- Overview of Tensors
- Tensors 1D
- Two-Dimensional Tensors
- Derivatives in PyTorch
- Simple Dataset
- Dataset and Data Augmentation

Build Your Digital Portfolio with GitHub and Ensure Market-Readiness

Get an edge in the market with your digital portfolio on GitHub. Share code and collaborate with other AI and ML enthusiasts on projects that add credibility to your resume.

Additionally, you will also:

Create your own profile or optimise your existing one

Publish two projects (including the capstone project) on your GitHub portfolio

Get insights from industry experts on why GitHub is a key differentiator in the interview process

Solve Real-World Problems on Kaggle for Practical Application

Practise your AI and ML skills on Kaggle, and learn from the global community. With several application-based problems and use cases, it gives you the required diversity in datasets and necessary preparation that is required to excel in AI and ML jobs.

Some benefits of Kaggle are:

Know how to work with datasets to clean them and build different models

Improve skills through AI ML competitions and benchmarks against experts

Showcase projects for potential employers by building a portfolio

Gain insights on the personal experience of industry experts on Kaggle

Publish a programme project in Kaggle

Get Insights into the Latest AI and ML Research

Learning to Forget: Continual Prediction with LSTM

This paper discusses a novel approach to continual learning using Long Short-Term Memory (LSTM) networks, focusing on the ability to forget outdated information while retaining relevant knowledge for prediction tasks.

Generative Adversarial Networks

This foundational paper introduces Generative Adversarial Networks (GANs), a framework in which two neural networks (the generator and discriminator) compete against each other, enabling the generation of realistic synthetic data.

Hierarchical Clustering: A Survey

The survey paper provides an overview of hierarchical clustering, a method used to group similar data points into a hierarchy of clusters. The paper discusses two main approaches: agglomerative (bottom-up) and divisive (top-down) clustering. It also covers distance measures, linkage criteria, and applications in areas such as bioinformatics and image analysis. The survey highlights the strengths and limitations of hierarchical clustering compared to other clustering techniques.

A Study on Multiple Linear Regression Analysis

This paper explores the theoretical and practical aspects of multiple linear regression, a statistical technique used to predict an outcome variable based on multiple independent variables. It covers the assumptions, estimation of parameters using least squares, and various diagnostic measures to assess model fit. Applications of multiple linear regression in fields like economics, biology, and social sciences are also discussed.

Fundamental Learning Outcomes

Understand and apply fundamental concepts of AI and ML

Apply deep learning techniques using state-of-the-art frameworks

Implement AI solutions in real-world scenarios

Develop and deploy ML models for various applications

Emeritus Career Services Benefits

Fifteen recorded sessions and resources in the following categories

(Please note: These sessions are not live):

IIMJobs Pro-Membership

Resume and Cover Letter

Navigating Job Search

Interview Preparation

LinkedIn Profile Optimisation

Key benefits:

- **Pro-Membership and features of IIMJobs and Hirist:** Access to job insights recruiter action status, follow-up actions, and ability to chat with recruiters who have shortlisted your profile
- **Spotlight on IIMJobs and Hirist:** Profile boost for applied jobs (that align with acquired certification), greater profile visibility - highlighted with institute name along with a testimony of certificate acquisition by the candidate
- **Spotlight Plus:** All the benefits of Spotlight and added advantages like profile and rank boost in the recruiter search database
- **Resume builder tool:** 6-month access to DIY resume builder, auto resume creator, optimization suggestions based on key parameters, guide on information to be incorporated, and unlimited resume iterations within the duration

Please note:

- *IITM Pravartak or Emeritus do NOT promise or guarantee a job or progression in your current job. Career Services are only offered as a service that empowers you to manage your career proactively. The Career Services mentioned here are offered by Emeritus. IITM Pravartak is NOT involved in any way and makes no commitments regarding the Career Services mentioned here.*
- *This service is available only for Indian residents enroled into selected Emeritus programmes.*

Programme Details

Programme Duration	11 Months
Programme Start Date	27 March 2025
Programme Fee	INR 1,50,000 + GST
Payment Options	Basic instalment plans
Special Pricing	Up to 10% fee benefit for corporate plans
Programme Format	Pre-recorded videos, live online sessions, faculty masterclasses, two days optional campus immersion at IIT Madras Research Park*

Eligibility Criteria:

Graduate/diploma holders can apply (basic Math and programming knowledge is preferred).

**Note:*
Only participants who have successfully completed the programme will be allowed to visit the campus.

About IITM Pravartak

IITM Pravartak is funded by the Department of Science and Technology, Government of India, under its National Mission on Interdisciplinary Cyber-Physical Systems, and hosted as a Technology Innovation Hub (TIH) by IIT Madras. The NM-ICPS is a comprehensive Mission aimed at complete convergence with all stakeholders by establishing strong linkages between academia, industry, Government, and International Organisations.

About Emeritus

Emeritus is committed to teaching the skills of the future by making high-quality education accessible and affordable to individuals, organisations and governments worldwide. It does this by collaborating with more than 80 top-tier universities across the United States, Europe, Latin America, Southeast Asia, India, and China. Emeritus's short courses, degree programmes, professional certificates, and senior executive programmes help individuals learn new skills and transform their lives, companies, and organizations. Its unique model of state-of-the-art technology, curriculum innovation; and hands-on instruction from senior faculty, mentors, and coaches has educated more than 350,000 individuals across more than 80 countries.

Apply for the programme here

APPLY NOW

Refer your colleague and earn benefits

REFER NOW

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