

# DIGITAL TRANSFORMATION TECHNOLOGIES

*AI for Business Leaders  
One-day certificate program by  
IIT Bombay*



LEAD INSTRUCTOR

**Prof. Asim Tewari**

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INTRODUCTION

# Why you should attend this program?

We have conducted 25 sessions till date and successfully trained more than 800 industry leaders and executives.

Digital transformation is radically reshaping our world. The pace of technological advancements in the field of artificial intelligence has outpaced any technology in the history of mankind. If we don't know what we don't know, then it is impossible to imagine and plan a future. This requires an understanding of the foundational technologies and an appreciation for the latest advancements that are fueling this Digital Transformation. Agile data-driven AI provides an aid and roadmap to develop a digital strategy for an organization. An ability to maneuver and manage the everchanging landscape and business uncertainty.

A central role in all of this transformation is played by the data. In the field of data science, if you cannot measure it, AI cannot learn it. Therefore, a fundamental objective of any organization should be to have a data-centric philosophy, where one builds all new infrastructures with a central aim to capture all the data even before one starts looking at it from an AI perspective. But more fundamentally, the leaders have to learn to re-imagine a fundamental shift in the traditional business model and to a data-driven AI-based business model.



# Who should attend?

## ➔ Industry Leaders

This program is specially designed for industry leaders who want to understand a high-level view of the fundamental technologies which are driving digital transformation.

### PROGRAM OVERVIEW

## What you will learn?

- ➔ What are the main ingredients of this digital transformation ecosystem?
- ➔ How are industrial Internet of Things (IIoT), artificial intelligence, big data, machine learning, edge computing, blockchain, 5G, and Quantum computing intertwined with each other and what role do they play in this transformation?



# Program Delivery

The course would be conducted in a face-to-face setting.



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Lectures



Interactive  
Sessions



Exhibitions

## BROAD TOPICS

# Key Areas Covered



## Artificial intelligence

- Key ingredients of the digital world.
- History of artificial intelligence and its growth.
- Introduction to machine learning.
- Supervised, unsupervised, semi-supervised, and reinforcement learning.
- Federated learning and transfer learning.
- Major breakthroughs in artificial intelligence.
- Deep networks, Generative AI and Adversarial Networks, Retrieval Augmented Generative (RAG) Models, Video Analytics, Natural Language Processing, and Large Language Models.
- Limitations of machine learning and artificial intelligence.
- Interpretability and Explainability of AI.
- Questions related to Trustworthiness, Fairness, Transparency, Causality, Transferability, Reliability, Accessibility and Privacy of artificial intelligence.
- Ethical and moral questions about AI.



## Industrial Internet of Things

- Advancements in sensor technology, communication, and storage.
- The big data and the war between sensor technology and storage technologies.
- Cloud, edge and fog computing.



## Industry 4.0 technologies:

- RFID/GPS/SIM for Track-and-Trace & digital threads and 3D printing, AR-VR & Digital Twins.



## And more

- Advanced algorithms for AI, machine learning, and digital trust (Hashing, Cryptography: Encryption, Authentication, Digital Signatures, Blockchain and zero trust architecture technologies).
- Cyber Espionage, Hacking, and Cyber Attacks. Advancements in computing technology.
- Future of machine learning and Cryptography with Quantum computing.
- Artificial General Intelligence and the Future (Specialized bots to general-purpose humanoids)
- Case studies of applications of AI and Machine learning to industries.

# About the Lead Instructor



LEAD INSTRUCTOR

**Prof. Asim Tewari**

*Professor, Center for Machine Intelligence and Data Science (C-MInDS) and Mechanical Engineering, IIT Bombay, Powai, Mumbai 400074*

Asim Tewari is a Professor (HAG) at the Center for Machine Intelligence and Data Science (C-MInDS) and the Department of Mechanical Engineering at the Indian Institute of Technology Bombay, Mumbai. He holds a B.Tech. from IIT Kanpur and an M.S. and Ph.D. from the Georgia Institute of Technology, Atlanta.

With over twenty-five years of experience across corporate R&D and national research laboratories, Professor Tewari has made significant contributions to the application of Artificial Intelligence in engineering systems and processes. He has authored more than 100 papers in international journals and conferences and holds eleven international and ten Indian patents. Under his supervision, eighteen Ph.D. and over fifty M.S. students have successfully graduated. Over the past decade, he has secured more than \$15 million in research funding.

At IIT Bombay, he has played a pivotal role in setting up several state-of-the-art research facilities and established a Cyber-Physical Systems and Data Analytics group, focusing on AI applications across diverse industrial sectors. He is also the founder of Zwilling Labs Pvt. Ltd., a deep-tech start-up incubated at IIT Bombay, working on digital transformation using AI, Industrial IoT data fusion, and video comprehension through deep learning for applications in manufacturing, transportation, mining, safety, and surveillance.

Professor Tewari also conducts executive training programs on AI and digital transformation and has trained over 800 industry leaders and executives.



FOR FURTHER DETAILS

## Contact Us

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