

DIGITAL TRANSFORMATION TECHNOLOGIES

*One-day Advanced certificate
program by IIT Bombay*



LEAD INSTRUCTOR

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INTRODUCTION

Why you should attend this program?

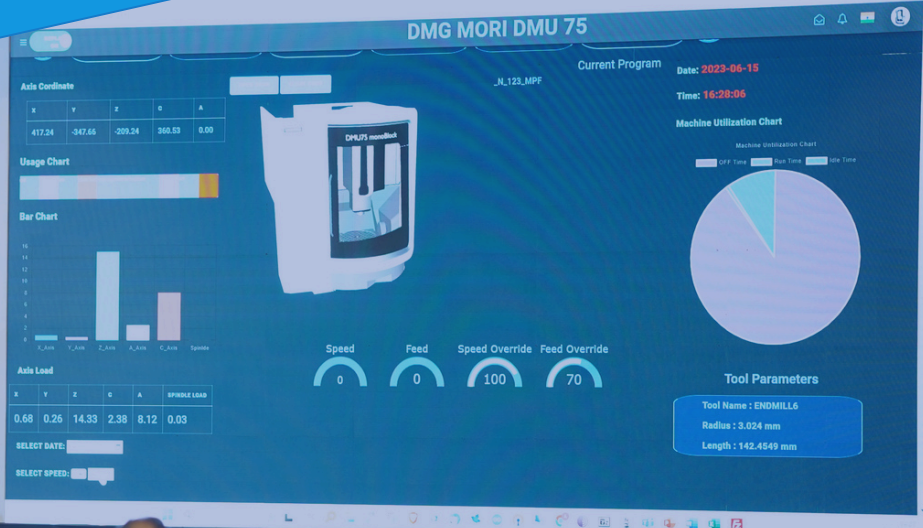
We have conducted 25 sessions till date and successfully trained more than 800 industry leaders and executives.

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.



WELCOME TO
THE INAUGURAL
EDITION OF
IITI DRISHTI CPS
FOUNDATION'S
ANNUAL
TECHNOLOGY
EXHIBITION
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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.



Confederation of



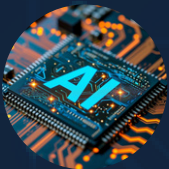
Lectures

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) in the Department of Mechanical Engineering and a faculty member of the Center for Machine Intelligence and Data Science (C-MInDS) at the Indian Institute of Technology, Bombay, Mumbai. He graduated with a Bachelor's degree in Technology (B.Tech.) from IIT Kanpur and an M.S. and Ph.D. from Georgia Institute of Technology, Atlanta. With over twenty-five years of work experience in both corporate R&D and national research laboratories, he has made significant contributions to the field in Applied Artificial Intelligence in engineering systems and processes. He has published over 100 papers in international journals and conferences, as well as secured eleven international and ten Indian patents. Under his guidance, eighteen Ph.D. students have graduated, along with more than fifty M.S. students. Over the last decade, he has secured research funding of over \$15 million.

At IIT Bombay, he has been instrumental in establishing several state-of-the-art facilities, including a Research Facility for Technical Textiles, a Medical Device Innovation Centre (BETiC), an Advanced Machining Excellence Cell, a Fiber Composite Research Laboratory, 4D X-ray Microscopy Laboratory, an experimental lab for thermo-mechanical simulation, and a Nano-characterization Texture Laboratory.


For the last decade, he has been working on the application of artificial intelligence in various domains. He established a Cyber-Physical Systems and Data Analytics research group at IIT Bombay, which focuses on smart manufacturing, machine learning, data analytics, and IoT for various sectors, including manufacturing, transportation, and defense. The group also works on video comprehension based on deep learning for inference and surveillance. Notably, the group has developed end-to-end solutions for digital factories using indigenous industrial IoT devices, cloud networking, and artificial intelligence backends. They have several international and Indian industrial projects to their credit and offer executive training on AI and digital transformation to industry.




FOR FURTHER DETAILS

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