

# About the FDP

## Objective:

The Faculty Development Program on "Digital Transformation in Manufacturing: Enhancing Efficiency and Innovation" aims to equip faculty, researchers, and professionals with advanced knowledge in Industry 4.0, IoT, and digital manufacturing. It focuses on developing practical skills through hands-on training, case studies, and industrial visits. The program promotes research, innovation, and collaboration with industry experts, while aligning with NEP 2020 by encouraging integration of emerging technologies into curricula. Emphasis is placed on smart manufacturing, and data-driven decision-making to enhance teaching, research, and industrial problem-solving.

## Output:

Upon completing the FDP, participants will gain practical expertise in Industry 4.0 technologies, apply digital tools for smart manufacturing, and enhance curricula aligned with NEP 2020. They will strengthen industry-academia collaboration, develop research outputs, and adopt data-driven, secure practices through hands-on learning, reflection, and real-world applications.



[www.aot.edu.in](http://www.aot.edu.in)

# About AOT

Academy of Technology (AOT), established in 2003 by a distinguished alumnus of IIT Kharagpur and IIM Calcutta, is a premier engineering institute in Eastern India with over 2,600 students across seven undergraduate and one postgraduate program. AOT is dedicated to academic excellence, innovation, and holistic student development. The institute regularly organizes AICTE-sponsored Faculty Development Programmes, IEEE-sponsored international conferences, Institute Lectures by eminent speakers from IITs, ISI, IISER, ISRO, and other leading institutions, as well as expert sessions by industry professionals. Through strong industry-academia partnerships and a focus on interdisciplinary learning, AOT nurtures a vibrant academic ecosystem that prepares students and faculty for future-ready careers and research.

# About ME Department

The Department of Mechanical Engineering, established in 2009, admits 60 students annually and boasts experienced faculty engaged in R&D. With seven advanced labs, it continually updates its teaching approach, offering courses and projects in cutting-edge fields like Machine Learning, IoT, Robotics, and Additive Manufacturing, aligning with AICTE's future vision.



AICTE Training and Learning (ATAL) Academy



**Six-Day Faculty Development Programme on Digital Transformation in Manufacturing: Enhancing Efficiency and Innovation**

**July 21-26, 2025**

*Organized by*

**ACADEMY OF TECHNOLOGY**

PO–Aedconagar, Hooghly–712121,  
West Bengal

**Coordinators**

Dr. Sourav Kayal  
Dr. Sanjib Kundu



# FDP Content

## Session Topic

- 1 Introduction to Industry 4.0 and Digital Manufacturing
- 2 Supply Chain Management in Digital Manufacturing
- 3 Digital transformation and Lean Project Management
- 4 Additive Manufacturing (3D Printing) and Digital Prototyping
- 5 Digital Twin Technology and Simulation
- 6 Data-Driven Decision Making and Performance Optimization
- 7 Case Studies: Digital Transformation Success Stories
- 8 Research Methodology for Digital Manufacturing
- 9 Internet of Things (IoT) for Smart Manufacturing
- 10 Future Trends and Challenges in Digital Manufacturing

# Who Can Attend

- Faculty Members
- Postgraduate Students
- Research Scholars
- Industry Personnel

# How to Apply

New Participants under ATAL FDP:

<https://atalacademy.aicte-india.org/signup>

Registered Candidate Login:

<https://atalacademy.aicte-india.org/login>

## Important Dates and Information:

- Last Date to Apply: **14th July 2025**
- Intimation to Selected Participants: **16th July 2025**
- Maximum Intake: **50 participants**
- Selection Criteria: **First-come, first-served basis**

# Registration Details

- The program is fully sponsored by AICTE.
- No registration fee is required.
- A lump-sum travel assistance of up to ₹1600 or actual travel expense (whichever is lower) will be provided to participants from institutions other than the host, commuting more than 20 km one-way, subject to a minimum of 90% attendance.
- Participants will be offered complimentary lunch and refreshments.
- No DA or accommodation will be provided.

# Organizing Committee

## Patron

Prof. Anindita Banerjee, *Chairman Trustee, AOT*

## Advisors

Prof. Dilip Bhattacharya, *Director, AOT*

Prof. Dilip Kumar Pratihar, *Professor, Indian Institute of Technology, Kharagpur*

Prof. Partha Pratim Das, *Professor, Ashoka University*

Prof. Ranjan Ganguly, *Professor, Jadavpur University*

## Chairperson

Prof. Dilip Kumar Maity, *Principal, AOT*

## Co-Chairperson

Prof. Niloy Ghosh, *Head, ME, AOT*

## Coordinators

Dr. Sourav Kayal, *Associate Professor, ME, AOT*  
[sourav.orijsita@gmail.com, 9062993217]

Dr. Sanjib Kundu, *Assistant Professor, ME, AOT*  
[sanjib.kundu@aot.edu.in, 9231660855]

**FDP Organized by:**

**Department of  
Mechanical Engineering**

Academy of Technology  
Affiliated to MAKAUT | Approved by AICTE

# Digital Transformation in Manufacturing: Enhancing Efficiency and Innovation

FDP Application Number: 1740823125

FDP Schedule

FDP ID: 4174

Starts: July 21, 2025

Ends: July 26, 2025

Day 1	Day 2	Day 3
<b>9.00 - 9.30</b> <b>Inauguration</b>	<b>9.00 - 9.30</b> <b>Tea</b>	<b>9.00 - 9.30</b> <b>Tea</b>
<b>9.30 - 12.00</b> <b>Session 1</b> <b>Introduction to Industry 4.0 &amp; Digital Manufacturing</b> <b>Resource Person: Dr. Nogendra Prasad Sinha,</b> President - Technical, Govind Steel Co. Ltd., with 50+ years of expertise in manufacturing and steel industry.	<b>9.30 - 12.00</b> <b>Session 3</b> <b>Digital transformation and Lean Project Management</b> <b>Resource Person: Mr. Subham De Sarkar,</b> DGM-EHS/Principal work programmer (project), Titagarh Rail System Limited, with 17+ years of expertise in project management.	<b>9.30 - 12.00</b> <b>Session 5</b> <b>Digital Twin Technology and Simulation</b> <b>Resource Person: Dr. Imon Mukherjee,</b> Assistant Professor, IIIT KALYANI, with 20+ years of expertise in Teaching and Research
<b>12.00 - 01.00</b> <b>Brainstorming Session: Article Discussion</b> <b>Title: Past, Present, and Future Barriers to Digital Transformation in Manufacturing: A Review</b> Source: Journal of Manufacturing Systems, 2021 DOI: <a href="https://doi.org/10.1016/j.jmsy.2021.03.006">10.1016/j.jmsy.2021.03.006</a>	<b>12.00 - 01.00</b> <b>Brainstorming Session: Article Discussion</b> <b>Title: Towards a lean digital transformation research framework: a literature review</b> Source: Journal of decision system, 2024 DOI: <a href="https://doi.org/10.1080/12460125.2024.2354608">10.1080/12460125.2024.2354608</a>	<b>12.00 - 01.00</b> <b>Brainstorming Session: Article Discussion</b> <b>Title: A framework for data-driven decision making in advanced manufacturing systems: Development and implementation</b> Source: Concurrent Engineering, 2024 DOI: <a href="https://doi.org/10.1177/1063293X241297528">10.1177/1063293X241297528</a>
<b>01.00 - 02.00</b> <b>Lunch</b>	<b>01.00 - 02.00</b> <b>Lunch</b>	<b>01.00 - 02.00</b> <b>Lunch</b>
<b>2.00 - 04.30</b> <b>Session 2</b> <b>Supply Chain Management in Digital Manufacturing</b> <b>Resource Person: Mr. Nripendra Nath Bain,</b> Head, Engineering & Project Quality Assurance, Tata Steel Ltd., with 23+ years of expertise in manufacturing and steel industry.	<b>2.00 - 04.30</b> <b>Session 4</b> <b>Additive Manufacturing (3D Printing) and Digital Prototyping</b> <b>Resource Person: Mr. Arpan Mukherjee,</b> Engineer-Design Quality Assurance, Stryker., with 12+ years of expertise in additive manufacturing..	<b>2.00 - 04.30</b> <b>Session 6</b> <b>Data-Driven Decision Making and Performance Optimization</b> <b>Resource Person: Mr. Priyabrata Saha,</b> Consultant, Deloitte Consulting India Pvt. Ltd., with 8+ years of expertise in data analysis.
<b>04.30 - 05.30</b> <b>Hands on Training /Labs:</b> Simulation in Digital Manufacturing	<b>04.30 - 05.30</b> <b>Hands on Training /Labs:</b> Additive Manufacturing and Digital Prototyping	<b>04.30 - 05.30</b> <b>Hands on Training /Labs:</b> Cloud-Based Data Analytics

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**Day 4**

**Day 5**

**Day 6**

**9.30 - 12.00**

**Session 7**

**Case Studies: Digital Transformation Success Stories**

**Resource Person: Dr. Tanushyam Chattopadhyay,**  
Associate General Manager and Head of Industrial AI,  
Adani Group, with 22+ years of expertise in Industrial AI

**9.30 - 12.00**

**Session 10**

**Future Trends and Challenges in Digital Manufacturing**

**Resource Person: Mr. Susanta Kumar Khan,**  
Manager, Quality Control, Dwarkesh Engineering Works Pvt. Ltd., with 25+ years of expertise in manufacturing and Steel Industry

**9.30 - 01.00**

**Industrial Visit**

**12.00 - 01.00**

**Brainstorming Session: Article Summary**

**12.00 - 01.00**

**Brainstorming Session: Article Discussion**

**Title: Exploring the potential of Industry 4.0 in manufacturing and supply chain systems: Insights and emerging trends from bibliometric analysis**

Source: Supply Chain Analytics, 2025

DOI: 10.1016/j.sca.2025.100108

**01.00 - 02.00**

**Lunch**

**01.00 - 02.00**

**Lunch**

**01.00 - 02.00**

**Lunch**

**2.00 - 04.30**

**Session 8**

**Research Methodology for Digital Manufacturing**

**Resource Person: Dr. Santanu Das**

Professor and Ex-Head, Dept. of ME, Kalyani Government Engineering Collage, with 30+ years of expertise in Teaching and Research

**2.00 - 04.30**

**Session 9**

**Internet of Things (IoT) for Smart Manufacturing**

**Resource Person: Dr. Amitava Nag**

Professor & Head, Dept. of CSE, CIT, Kokrajhar, with 20+ years of expertise in Teaching and Research

**2.00 - 04.00**

**MCQ & Reflection Journal**

**04.30 - 05.30**

**Hands on Training /Labs:**

Tools in Research Methodology

**04.30 - 05.30**

**Hands on Training /Labs:**

IoT based lab

**04.00 - 05.00**

**Valedictory Session**