

# Data-driven quality control in smart manufacturing systems

One-week hands-on workshop at IIT (ISM) Dhanbad

Batch-1: 25<sup>th</sup> – 31<sup>st</sup> May, 2026

Batch-2: 06<sup>th</sup> – 12<sup>th</sup> July, 2026



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- ✓ High-frequency force data sensing during VMC milling for real time process insights
- ✓ Vibration signal analysis in CNC turning centre for real-time tool condition monitoring
- ✓ Data-driven surface fractal analysis using optical profilometry for quality assessment
- ✓ Ultra-high speed micro-machining and micro-drilling using sub-mm tools
- ✓ Current-voltage control for process monitoring in precision profiling by wire-EDM
- ✓ Data-centric monitoring of build quality and defect in robot-integrated WAAM process
- ✓ From CAD model to 3D printing: Quality prediction in direct digital polymer manufacturing
- ✓ Industry-grade abrasive water jet machining for ceramic slicing and profiling
- ✓ AS/RS-integrated flexible manufacturing system for automation in Industry 4.0
- ✓ High-temperature plasma generation and its utilization for industrial plasma arc cutting
- ✓ Metallurgical polishing and microstructure-level destructive detection of internal defects



## Eligibility

- ✓ BTech & MTech students of all years and streams
- ✓ BSc and MSc students of all years and departments
- ✓ Diploma & MBA students of all years and streams
- ✓ PhD scholars of all disciplines
- ✓ Staff and faculty of any college / university
- ✓ Industry professionals

(There is no minimum CGPA requirement. Students with backlogs/supplementary courses are also eligible).

## Registration fees

Category	External	Internal *
Student	₹ 6,500/-	₹ 2,500/-
All others	₹ 7,000/-	₹ 3,000/-

\* Lodging and meals will not be provided for participants from IIT (ISM) Dhanbad.

## Inclusions

- ✓ Accommodation for seven nights in student hostel on sharing basis for external participants only.
- ✓ Three meals in hostel for external participants only.
- ✓ Refreshments, workshop kit, & certificate for all.
- ✓ Award for top performer.

## Registration Procedure

**Step-1:** Pay registration fees in the following QR code (IIT ISM CEP Account)

**Step-2:** Fill the following google form mandatorily and enclose documents

<https://forms.gle/8H8zoT9Ptgd9zbvJ8>

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## How to reach IIT (ISM) Dhanbad?

- Nearest rail station is Dhanbad junction (DHN). Daily multiple trains are available from Howrah, Ranchi, and Delhi.
- From station, take local auto to reach IIT (ISM) campus (fare 15/-).

## Contact details

1. Mr. Arindam Mukherjee (PhD scholar) – 7557826702
2. Dr. Mohan Kumar (Post-doc fellow) – 9470827418
3. Prof. Suman Saha (Assistant Professor) – 8582870452

