



MAHARAJA AGRASEN INSTITUTE OF TECHNOLOGY, DELHI

DEPARTMENT OF MECHANICAL ENGINEERING

EVENT REPORT

Date: 16 July, 2026

Department: Department of Mechanical Engineering

Activity Category: Faculty Development Programme (FDP)

Title of the Activity: 3-Day Faculty Development Programme on Advanced Precision Measurement

Theme/Focus Area: Advanced Metrology, Geometric Inspection, and Industry 4.0 Smart Manufacturing Practices

1. Basic Details

Date of Activity: 14 July 2026 to 16 July 2026 (*Note: The brochure image lists 14–16 July 2026 as the official active dates*)

Day: Tuesday, Wednesday, and Thursday

Time: 10:00 AM – 04:00 PM daily

Venue: Center of Excellence for Precision Measurement / Advanced Metrology Lab, MAIT

Organized by: Department of Mechanical Engineering, MAIT

Activity Coordinator(s): Dr. Vaibhav Jain (Convener), Mr. Rakesh C. Saini, Dr. Piu Jain, Mr. Atul Kaushik

Number of Participants: External Participants- 3

2. Resource Person / Speaker Details

Name: Mr. Rakesh C. Saini, Dr. Piu Jain, Mr. Atul Kaushik (Assistant Professor, ME, MAIT)

Area of Expertise: Coordinate Measuring Machines (CMM), Surface Roughness Metrology, and Automated Quality Frameworks

3. Objectives of the Activity

1. To understand the fundamental principles of industrial metrology, precision measurement, and zero-defect manufacturing frameworks.
2. To build hands-on competency in dimensional inspection using conventional digital instruments, slip gauges, and surface roughness testers.
3. To acquire advanced technical expertise in operating a high-accuracy 3-axis CNC Coordinate Measuring Machine (CMM) and utilizing MCOSMOS software for automated CAD-based inspection.
4. **Targeted Mapping:** Aligned with Program Outcomes PO4 (Conduct investigations of complex problems), PO5 (Modern tool usage), and Sustainable Development Goal (SDG) 9: Industry, Innovation, and Infrastructure.

4. Description of the Activity

The 3-Day Faculty Development Programme was organized to bridge the gap between theoretical metrology education and modern smart manufacturing quality standards.

- **Day 1** commenced with an official inauguration at 10:00 AM, followed by core expert lectures covering the fundamentals of precision engineering and product reliability. The afternoon featured intensive hands-on lab training on surface metrology using the Mitutoyo Surface Roughness Tester.
- **Day 2** was dedicated entirely to an all-day comprehensive practical session. Participants rotated through specialized work benches, performing real-time structural inspection, tolerance verification using physical gauges, and practical calibrations utilizing Digital Vernier Calipers, Micrometers, Slip Gauges, Height Gauges, and Surface Plates.
- **Day 3** introduced participants to high-accuracy sub-micron dimensional analysis. Attendees were trained on a 3-axis CNC CMM, mastering probe calibration, complex geometric scanning, and data processing via MCOSMOS software. The program concluded with a Valedictory Session, interactive feedback collection, and certificate distribution.

5. Learning Outcomes / Impact

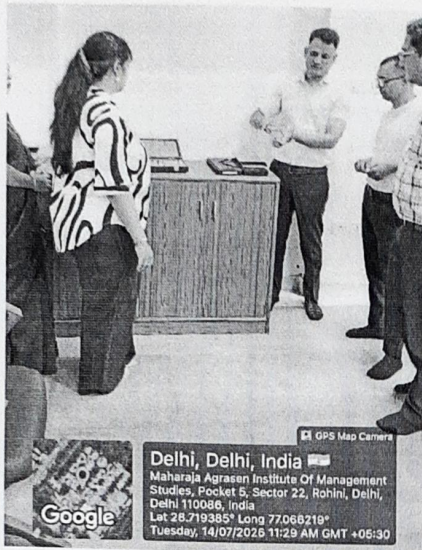
Skills Gained: Proficiency in probe calibration, automated CAD-based components measurement, surface roughness testing, and precision instrumentation handling.

Knowledge Enhancement: Deepened insight into integration strategies for Statistical Process Control (SPC) frameworks and smart production environments.

Course Gap Fulfilled: Effectively bridged the gap in industrial engineering curricula regarding modern automated metrology equipment.

SDG Met: Contributes significantly to SDG 9 by enhancing technical training infrastructure for smart manufacturing practices.

6. Photographs



7. Feedback Summary

Mode of Feedback Collection: Google Form

Average Rating: 5

Key Feedback Insights: Participants highly praised the structural layout of the Day 2 dedicated instrumentation lab and expressed immense satisfaction with the direct access provided to the Mitutoyo CNC CMM hardware.

8. Recommendations / Future Scope

It is recommended to organize extended, week-long specialized certification programs focusing exclusively on MCOSMOS software operations and advanced CAD-to-Part inspection modules.

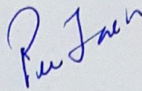
10. Annexures

- **Annexure I** – Participant Attendance Sheet
- **Annexure II** – FDP Brochure
- **Annexure III** – Participant Feedback Summary Charts

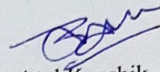
Report Prepared by:



Mr. Rakesh C. Saini



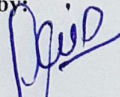
Dr. Piu Jain



Mr. Atul Kuashik

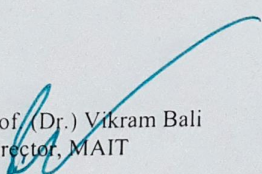
Designation: Assistant Professor, Department of Mechanical Engineering

Verified by:



Dr. Vaibhav Jain
HoD (Mechanical Engineering)

Approved by:



Prof. (Dr.) Vikram Bali
Director, MAIT