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Training Programme On

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Advanced Signal Processing in Micro – Manufacturing & Automation

Course Code: 4204

02nd – 03rd December 2025

Targeted Audience

1. Key concepts of signal processing, applications, challenges, and future trends
2. Use signal processing for detecting faults in machinery and manufacturing processes
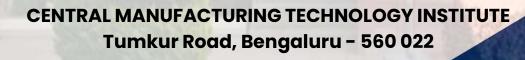3. Leveraging deep learning techniques in advanced signal processing for automation applications

CONTACT US

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✉ **training@cmti.res.in**

CENTRAL MANUFACTURING TECHNOLOGY INSTITUTE
Tumkur Road, Bengaluru – 560 022

About AEAMT

Centre for Skill Development, is a flagship initiative of CMTI, aims to enhance the knowledge and skills of practicing engineers, create job ready engineers to the Indian Manufacturing sector and to bridge the gap between industry and academia.

Focused Area / Objectives :

1. Role of signal processing in the future of Industry 4.0 and micro-manufacturing
2. Machine learning and AI techniques for signal classification and anomaly detection
3. Successful implementations of signal processing in micro-manufacturing and automation: case studies and applications

Targeted Audience :

Engineers, researchers, and practitioners aiming to innovate in high-precision manufacturing industries

Programme Co-ordinator :

Dr. Debeshi Dutta, a Scientist-C at the Centre for Micro-Nano Manufacturing and Metrology (C-MNTM), brings a wealth of expertise in Electronics and Instrumentation. Her educational background includes a B.Tech. in Electronics and Instrumentation, an M.Tech. in Biomedical Engineering, and a Ph.D. in Engineering. Dr. Dutta's expertise encompasses controller design, AI-assisted data analysis, and the application of sensors and signals in industrial settings.

Dr. Manjunath K, is a Scientist-B at the Center for Micro-Nanomanufacturing and Metrology (C-MNTM). He holds a B.Tech. in Mechanical Engineering, an M.Tech. in Advanced Instrumentation, and a Ph.D. in Engineering with a specialization in advancements in monitoring and prediction within the field of Ultra-precision Machining utilizing intelligent manufacturing techniques. His expertise encompasses Computational Mechanics, Intelligent Manufacturing, Ultra-Precision Machining, and Optical Instrumentation.

Programme Schedule :

It is a 02 Days Non-Residential Training Programme scheduled during 21st – 22nd July 2025, now postponed to 02nd – 03rd December 2025. The Programme will be held at Central Manufacturing Technology Institute, Bengaluru.

Participation Fees :

Rs. 7,800/- plus GST @ 18%***, per participant. This includes Course Kit, working veg lunch, midsession tea.

Course Fee can be paid through NEFT / RTGS / Demand Draft. Demand Draft to be drawn in favor of "Central Manufacturing Technology Institute", payable at Bengaluru and should reach CMTI one week before the actual date of commencement of the course

Beneficiary for RTGS/NEFT

a) Name : Central Manufacturing Technology Institute
b) GST No : 29AAATC2085K1ZJ
c) Account No : 10521862015
d) Bank Name & Branch : State Bank of India, Yeshwanthpur Branch
e) IFSC Code : SBIN0003297
f) MICR Code : 560002055

Additional Information :

- A 10% rebate on course fee will be given to organizations nominating 3 or more participants for each programme, only if payment is made in advance, ten days before the commencement of the course.
- Individuals/ Companies interested in participation are requested to fill in the enclosed Enrollment Form and submit at the earliest.
- Participants are advised to proceed for the programme only after the nominations / Programme confirmed by us (by Fax / Letter / Phone / E-Mail).
- Participants should report at CMTI on the day of commencement of the course. Participants are advised to reach Bangalore the previous day evening/ night.
- Course will be conducted from 09:00 to 17:00 hrs. Participants may plan their return journey accordingly.
- Participants will be given Certificate after the completion of the Training Programme
- nclosed are the tentative programme contents for ready reference
- GST No. to be shared while sending your nomination / Registration (If a company is exempted from GST they have to provide GST Exemption certificate).
- Please note that Course fee once paid will not be refunded. However, change in nomination will be permitted.

Note: *** Taxes and other levies will be charged as per the prevailing rates at the time of Billing

Tentative Programme Schedule

Days	Topics
Day 01	Registration
	Introduction to Course
	Advanced signal processing techniques in manufacturing automation
	Adaptive signal processing
	Signal processing in condition monitoring of machine tools
	Demo: Real-time signal acquisition of and data analysis in MATLAB/Python
	Lab visits in CMTI
Day 02	Anomaly detection using time-frequency analysis on Real-time data
	Real-time anomaly detection using Image-based systems
	Advance Deep learning analysis for analysing the anomaly in the signal/Image
	Hands-on training: Extraction of features from the data obtained Implementation of Deep-Transfer learning techniques in MATLAB/Python
	Concluding Session