

Greetings from CMTI

We are pleased to inform you that we are conducting a 03 day Non-Residential Training programme on "**Thin Film Deposition Techniques & Characterization Methodologies – Sputtering, PECVD, E-Beam Evaporation & Electroplating**", course code: 4203

Highlights / Overview of the Program:

- Acquire the necessary skills and knowledge to conduct research, development, and industrial applications in the field of thin-film deposition.
- Gain a comprehensive understanding of the principles and mechanisms Magnetron Sputtering, Plasma-Enhanced Chemical Vapor Deposition (PECVD), E-Beam Evaporation and Electroplating techniques.
- Explore the characterisation methodologies for mechanical, electrical, and chemical properties of thin films.

Target Participants:

Scientists, Engineers, R&D professionals, teaching professionals, Lab Technicians, Researchers, and Project Assistants, PG students.

Programme Schedule

It is 03 day Non Residential Training Programme scheduled during **10th - 12th June 2026**. The Programme will be held at Central Manufacturing Technology Institute, Bengaluru

Participation Fees

Rs. 11,700/- plus GST @ 18%**, per participant. This includes **Course Kit, working veg lunch, mid session 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 Bangalore 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:

1. 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.
2. Individuals/ Companies interested in participation are requested to fill in the enclosed Enrollment Form and submit at the earliest.
3. Participants are advised to proceed for the programme only after the nominations / Programme confirmed by us (by Fax / Letter / Phone / E-Mail).
4. Participants should report at CMTI on the day of commencement of the course. Participants are advised to reach Bangalore the previous day evening/ night.
5. Course will be conducted from 09:00 to 17:00 hrs. Participants may plan their return journey accordingly.
6. Participants will be given Certificate after the completion of the Training Programme
7. Enclosed are the tentative programme contents for ready reference
8. GST No. to be shared while sending your nomination / Registration (If a company is exempted from GST they have to provide GST Exemption certificate).
9. 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**

For further enquiries / registration / nominations, please contact:
Mr. Arun Kumar J G, Joint Director & Centre Head – AEAMT,
09449842686 / 78 Fax: (080) 2337 0428
E-mail– training@cmti.res.in, aravinda@cmti.res.in

Training Programme

On “Film Deposition Techniques & Characterization Methodologies – Sputtering, PECVD, E-Beam Evaporation & Electroplating”

Tentative Programme Schedule

| Days | Topic |
|--------|---|
| Day 01 | Introduction to Thin Film Deposition & Vacuum Technologies |
| | Physical Vapor Deposition (PVD) Techniques |
| | Plasma enhanced Chemical Vapour Deposition: Film growth mechanisms and process parameters |
| | Practical Session I(a): Sample Preparation for PVD/PECVD & Deposition |
| | Practical Session I(b): PVD/PECVD Based DLC Coating & CNT Growth |
| | Lab visits in CMTI @ NMTC |
| Day 02 | Introduction to Electron Beam Deposition |
| | Introduction to Electroplating |
| | Thin film case studies (Effect of seed layer, morphology, flexible substrate, annealing, stress etc.) |
| | Practical Session II(a): E-beam Evaporation |
| | Practical Session II(b): Electroplating |
| | Lab visits in CMTI @ STDC |
| Day 03 | Thin film characterization techniques-I Structural properties |
| | Thin film characterization techniques-II Mechanical properties |
| | Thin film characterization techniques-III |
| | Practical Session III(a): Thin-film Characterization |
| | Practical Session III(b) Thin-film Characterization |
| | Concluding Session |