

A brief report of the Three day Faculty Development Programme on “Hands-on-Training for Nanotechnology Research held from 19 – 21 October 2022 at AVIT

An interactive and activity-oriented three day Faculty Development Programme (FDP) was successfully conducted at Aarupadai Veedu Institute of Technology from 19th – 21st October 2022 jointly by the Physics and Chemistry divisions of the Department of Humanities & Sciences. The FDP received a good response with 21 participants from various Engineering and Science institutions around Chennai.

The programme was inaugurated in the morning at the Digital room VI of AVIT on 19th Oct. 2022 by **Dr. Jennifer G. Joseph, Head of the Department of Humanities and Sciences** of AVIT. **Dr. K. Ganesan** (Chief Guest and a Resource person), Scientist, Indira Gandhi Centre for Atomic Research, **Dr. R. N. Viswanath, FDP- Convener, Dr. R. Nagalakshmi, FDP- coordinator and FDP co-convenors Dr. B. Dhanalakshmi, Dr G. Suresh and Dr Suganya GA Josephine** were present at the gathering.



The Head of the Department of Humanities and Sciences addressed the importance and significance of organizing the FDP in every year to the faculty participants. Dr R. N. Viswanath, FDP Convener introduced the chief guest. The guest, **Dr K. Ganesan** was felicitated thereafter. The inaugural function concluded with a vote of thanks by Dr R. Nagalakshmi, FDP Co-ordinator.



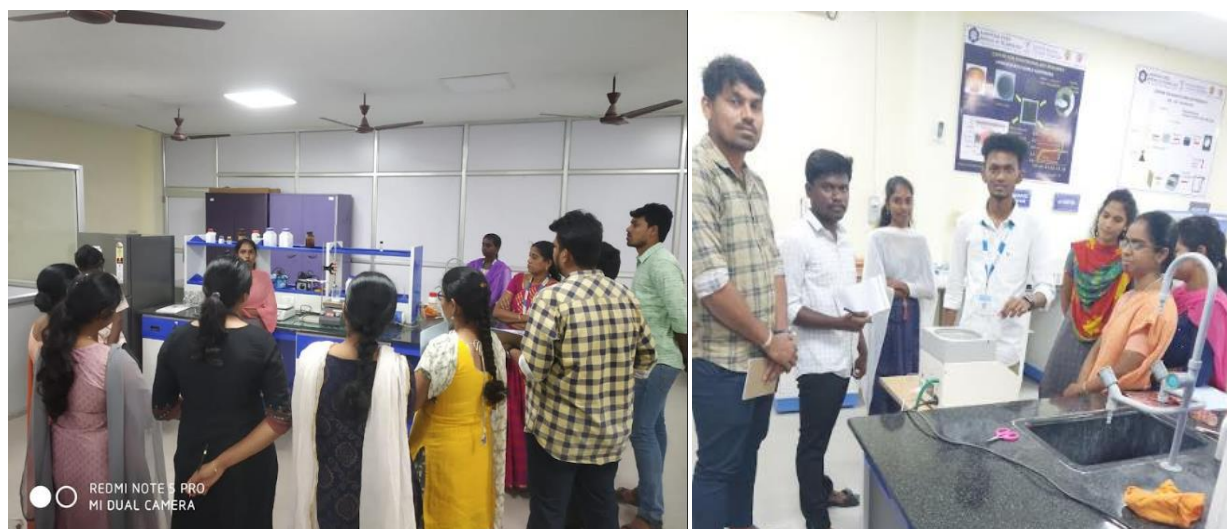
In the technical session, the Chief Guest Dr K. Ganesan gave a science lecture on “**Scope of the Nanotechnology in India**”. During the presentation, the guest discussed the types and characteristic features of surface scanning probe microscopy techniques for the mapping of 3D-topography images on atomically smooth surfaces .The guest highlighted with examples, the technological importance of Atomic force microscopy techniques for various engineering disciplines. The guest further outlined how an AFM tip connected to a cantilever scanned over the surface of the flat samples with a small repulsive force present between the sample and the tip.

In the latter part of his presentation, the advantages of the AFM coupled with Magnetic and electric fields for acquiring local electrical and magnetic properties of the sample at nanoscale have been discussed.



Subsequent to the Guest lecture, the Hands-on training event started for three days. The event details are given in tabular form with sequential order.

Day 01		
Tutorial Sessions:: 11: 30 am – 12.45 pm		
S. No.:	Name of the Faculty coordinated	Name for the events given training
01	Dr R. Nagalakshmi	Synthesis of Nanomaterials
02	Dr B. Dhanalakshmi	Synthesis of colloidal crystals
Tutorial Sessions:: 13: 30 am – 15.00 pm		
S. No.:	Name of the Faculty	Name for the events given training
01	Dr G. Suresh	FTIR Measurements on standard samples
02	Dr B. Nagalakshmi and Dr B. Dhanalakshmi	Handling of UV-Vis spectrometer for optical absorption measurements
10.00 – 15.00 h		
Group Discussion and feed-back from the participants through QUIZ.		
Day 1 training ends at 15.30 pm		



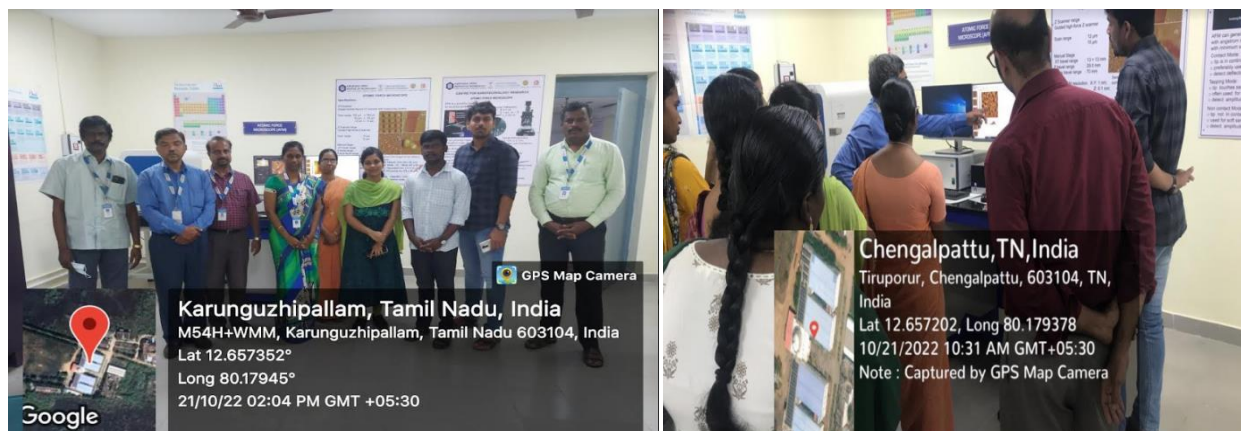
Day: 02		
Tutorial Sessions:: 9: 30 am – 12.45 pm		
S. No.:	Name of the Faculty coordinated	Name for the events given training
01	Dr R. N. Viswanath	Introduction to Nanomaterials Characterization facilities
02	Research Scholars	Thin film deposition – Spin coating unit
Tutorial Sessions:: 13: 30 am – 15.00 pm		
S. No.:	Name of the Faculty	Name for the events given training
01	Research Scholars	UV-Visible measurements of colloidal crystals
02	Research Scholars	FTIR measurements on Biological samples
15.00 – 15.30 pm		

Group Discussion and feed-back from the participants

Day 2 training ends at 15.30 pm



On the third day of the FDP, **Dr. R.N. Viswanath** discussed the technical details of Atomic force microscopy techniques with special emphasis on its technological importance. Dr. Viswanath covered the background information about the microscope, advantages and disadvantages of AFM, AFM experimental set-up, force-distance relationship, types of AFM scanning modes, how does AFM works, etc in the tutorial hour. Dr Viswanath also highlighted the technical skills involved in the AFM measurement and the data analysis.



The participants interacted with the experts in all the tutorial sessions and clarified their queries. Finally, the FDP ended at 15.30 IST with a concluding session.