



One-Week Hands-On Training Program on “Applications of Multifaceted State of the Art Techniques in Modern Chemistry”
(1st February –7th February, 2023)

The Department of Science and Technology, Government of India, has given the responsibility to IIT (ISM) Dhanbad to build human resources and its knowledge capacity using open access science and technology infrastructure through the scheme "*Synergistic Training Program Utilizing the Scientific and Technological Infrastructure (STUTI)*". Thus, under the DST-STUTI programme of IIT (ISM) Dhanbad, a one-week hands-on training program on "*Applications of Multifaceted State of the Art Techniques in Modern Chemistry*" was organized from 1st February to 7th February, 2023 at Department of Chemistry, Vidyasagar University, Midnapore, West Bengal - 721102.

This training program was coordinated by Prof. Swapan Dey, Department of Chemistry and Chemical and Biology IIT (ISM) Dhanbad and Prof. Sumita Roy, Department of Chemistry, Vidyasagar University, Midnapore. This program includes thirty participants (Faculties/Research Scholar/ PG Students) from various universities/colleges In India.

Highlights of the Day-1 (Dated: 1st February, 2023)

Before formal inauguration of the program the participants were provided a welcome kit that included a note pad, a power kit (pen, pencil, eraser, and sharpener), and a program pamphlet. Then the training program was inaugurated by Satyajeet Saha, Dean of Science, Prof. Sumita Roy, H.O.D, Department of Chemistry, Vidyasagar University welcomed all the participants and speakers. Prof. Swapan Dey, Department of Chemistry and Chemical Biology IIT (ISM) Dhanbad explored with a brief introduction to the program's purpose and significance. The introduction energized the participants interest for Training Session.

Following that, two consecutive lectures were scheduled. The first lecture (from 10:15 AM to 11:30 AM) was based on fundamental and theoretical concept of circular dichroism spectroscopy and was delivered by Dr. Maidul Hossain, Vidyasagar University. The second lecture (from 11:45 AM to 01:30 PM) was based on the application of circular dichroism in determination of conformation of different biomolecules and was delivered by Dr. Anirban Basu, Vidyasagar University.

Next, after the lunch break, a practical demonstration (from 02:30 PM to 05:30 PM) was provided by Dr. Anirban Basu, Vidyasagar University



Highlights of the Day-2 (Dated: 2nd February, 2023)

On the second day, The first lecture (from 10:00 AM to 11:15 AM) was based on the Theoretical concept, working principle and data analysis of isothermal calorimetric technique and was delivered by Prof. Sudipta Dalai, Vidyasagar University. The second lecture (from 11:30 AM to 12:45 PM) was based on the Application of ITC in elucidation of the binding thermodynamics of various biological systems and was delivered by Dr. Maidul Hossain, Vidyasagar University.

Next, after the lunch break, a practical demonstration (from 02:00 PM to 05:00 PM) was provided by Dr. Maidul Hossain, Vidyasagar University.

Highlights of the Day-3 (Dated: 3rd February, 2023)

On the third day, two lectures were delivered. The first lecture (from 10:00 AM to 11:15 AM) was based on Fundamental and theoretical concept of steady state fluorescence spectroscopy and taught. The second lecture (from 11:30 AM to 12:45 PM) was based on fundamental and theoretical concept of time resolved fluorescence spectroscopy and was taught by Prof. Ajay Misra, Vidyasagar University.

Following the lunch break, a practical demonstration (from 02:00 PM to 05:00 PM) was provided by Prof. Ajay Misra, Vidyasagar University.

Highlights of the Day-4 (Dated: 4th February, 2023)

On the fourth day, two lectures were given. The first lecture (from 10:00 AM to 11:15 AM) was focused on the fundamentals of rheology and was delivered by Prof. Sagar Pal, IIT (ISM) Dhanbad. The second lecture (from 11:30 AM to 12:45 PM) was focused on the applications of rheology to various biomaterials and was delivered by Prof. Sumita Roy, Vidyasagar University.

Next, after the lunch break, a practical demonstration (from 02:00 PM to 05:00 PM) was provided by Prof. Sumita Roy, Vidyasagar University.



Highlights of the Day-5 (Dated: 5th February, 2023)

Similarly, on the fifth day, two lectures were given. The first lecture (from 10:00 AM to 11:15 AM) was focused on the principles of NMR Spectroscopy and was delivered by Prof. Braja Gopal Bag, Vidyasagar University. The second lecture (from 11:30 AM to 12:45 PM) was focused on the application of NMR in elucidation of structure of organic compounds by and was delivered by Prof. Swapan Dey, IIT (ISM) Dhanbad.

Next, after the lunch break, a practical demonstration (from 02:00 PM to 05:00 PM) was provided by Prof. Braja Gopal Bag, Vidyasagar University.

Highlights of the Day-6 (Dated: 6th February, 2023)

On the sixth day, two lectures were given. The first lecture (from 10:00 AM to 11:15 AM) entitled ‘principle and applications of AFM’ was delivered Dr. Maidul Hossain, Vidyasagar University. The second lecture (from 11:30 AM to 12:45 PM) was based on principle and applications of SEM and was taught by Prof. Braja Gopal Bag, Vidyasagar University.

Next, after the lunch break, some practical demonstrations (from 02:00 PM to 05:00 PM) was provided by Dr. Maidul Hossain, Vidyasagar University.

Highlights of the Day-7 (Dated: 7th February, 2023)

Similarly, on the seventh day (the last day of the training program), two lectures (the first lecture was from 10:00 AM to 11:15 AM and the second lecture was from 11:30 AM to 12:45 PM) were conducted based on the ‘fundamentals and basic principle underlying computational chemistry’ and Various applications of computational Chemistry in modern day research respectively and delivered by Prof. Ajay Misra, Vidyasagar University and Prof. Niladri Patra, IIT (ISM) Dhanbad.

Next, after the lunch break, a practical demonstration (from 02:00 PM to 03:00PM) was delivered by Prof. Ajay Misra, Vidyasagar University.

Following that, the certificate distribution ceremony took place, with Prof. Amiya Kumar Panda Vice-Chancellor, Sadhu Ramchand University as a chief guest. A few participants were called to comment on the feedback of the program, although a formal feedback form had already been



circulated among participants and collected before the Valedictory function. It can be observed from the feedback form that almost all participants were extremely benefitted from the program and very happy with the arrangement made during the training program. Some of them have also requested to continue such program at the Centre.

Throughout the training program, a formal healthy discussion environment was established for the exchange of scientific and technological knowledge.
