



IIT (ISM) Dhanbad

Under
Synergistic Training program Utilizing the Scientific & Technological
Infrastructure
An initiative of Department of Science & Technology (DST), Govt. Of India
Organized by

Department of Mathematics and Computing , IIT (ISM) Dhanbad



सत्यमेव जयते
Department of Science and Technology
Ministry of Science and Technology
Government of India

DST, Govt of India

One-Week Hands-On Training Program on "Mathematical Methods with Applications" (14th March – 20th March, 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 "*Mathematical Methods with Applications*" was organized from 14th March – 20th March, 2023 at Department of Mathematics and Computing, Indian Institute of Technology (Indian School of Mines), Dhanbad – 8206004. This training program was coordinated by Prof. S. P. Tiwari, and Co-coordinated by Prof. B. Kushvah, Department of Mathematics and Computing, IIT (ISM) Dhanbad. The program includes thirty women participants (Research Scholars/ PG Students) from various universities/colleges in Jharkhand.

Highlights of the Day-1 (Dated: 14th March, 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 Prof. R. K. Upadhyay HOD (Department of Mathematics and Computing) and Prof. Ravi K. Gangwar, Associate Dean (Department of Research & Development) IIT (ISM) Dhanbad. The Program Coordinator Prof. S. P. Tiwari, Dept. of Mathematics and Computing, IIT (ISM) Dhanbad welcomed all the participants and speakers. Prof. B. S. Kushvah, Program Co-coordinator, Department of Mathematics and Computing, IIT (ISM) Dhanbad explored with a brief introduction to the program's purpose and significance. The introduction energized the participants interest in Mathematics and its various aspects in different field of life. Following that, two consecutive lectures were scheduled. The first lecture (from 10:30 AM to 11:45 AM) was based on the Modelling Chaotic Dynamics and was delivered by Prof. R. K. Upadhyay, IIT (ISM) Dhanbad. The second lecture (from 11:45 AM to 01:30 PM) was based on the Linear Programming and Applications and was delivered by Prof. Anurag Jayswal, IIT (ISM) Dhanbad.

Next, after the lunch break, a practical demonstration (from 02:30 PM to 05:30 PM) was provided by Prof. B.S. Kushvah, IIT (ISM) Dhanbad



Highlights of the Day-2 (Dated: 15th March, 2023)

On the second day, The first lecture (from 10:00 AM to 11:15 AM) was based on the Linear Programming and Applications and was delivered by Prof. Anurag Jayswal, IIT (ISM) Dhanbad. The second lecture (from 11:30 AM to 12:45 PM) was based on the Fuzzy Set Theory and its Applications and was delivered by Prof. S. P. Tiwari, IIT (ISM) Dhanbad.

Next, after the lunch break, a practical demonstration (from 02:00 PM to 05:00 PM) on machine learning was provided by Prof. Kartikey Gupta, IIT (ISM) Dhanbad.

Highlights of the Day-3 (Dated: 16th March, 2023)

On the third day, two lectures were delivered. The first lecture (from 10:00 AM to 11:15 AM) was based on Machine Learning Algorithms and their implementation and was taught by Dr. Prof. Kartikey Gupta, IIT (ISM) Dhanbad. The second lecture (from 11:30 AM to 12:45 PM) was based on the Linear Algebra in Machine Learning and was taught by Prof. B.S. Kushvah, IIT (ISM) Dhanbad.

Following the lunch break, a practical demonstration (from 02:00 PM to 05:00 PM) was provided by Prof. Sanjeev Anand Sahu, IIT (ISM) Dhanbad.

Highlights of the Day-4 (Dated: 17th March, 2023)

On the fourth day, two lectures were given. The first lecture (from 10:00 AM to 11:15 AM) was focused on the Public Key Cryptosystem and was delivered by Prof. Pramod Kumar Kewat, IIT (ISM) Dhanbad. The second lecture (from 11:30 AM to 12:45 PM) was focused on the Fundamental Concept of PDE and its Application to Solute Transport Modelling and was delivered by Prof. M. K. Singh, IIT (ISM) Dhanbad.

Next, after the lunch break, a practical demonstration (from 02:00 PM to 05:00 PM) was provided by Prof. S. P. Tiwari, IIT (ISM) Dhanbad.



Highlights of the Day-5 (Dated: 18th March, 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 Fundamental Concept of PDE and its Application to Solute Transport Modelling and was delivered by Prof. M. K. Singh, IIT (ISM) Dhanbad. The second lecture (from 11:30 AM to 12:45 PM) was focused on the Public Key Cryptosystem and was delivered by Prof. Pramod Kumar Kewat, IIT (ISM) Dhanbad.

Next, after the lunch break, a practical demonstration (from 02:00 PM to 05:00 PM) was provided by Prof. Kartikey Gupta, IIT (ISM) Dhanbad.

Highlights of the Day-6 (Dated: 19th March, 2023)


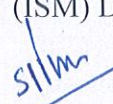
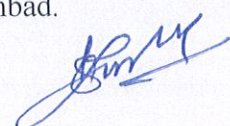
On the sixth day, two lectures were given. The first lecture (from 10:00 AM to 11:15 AM) entitled ‘Quantum Computing’ was delivered Prof. Abhay Kumar Singh, IIT (ISM) Dhanbad. The second lecture (from 11:30 AM to 12:45 PM) was based on Linear Algebra in Machine Learning and was taught by Prof. B.S. Kushvah, IIT (ISM) Dhanbad.

Next, after the lunch break, some practical demonstrations (from 02:00 PM to 05:00 PM) were provided by Prof. Abhay Kumar Singh, IIT (ISM) Dhanbad.

Highlights of the Day-7 (Dated: 20th March, 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 ‘Quantum Computing’ and Stochastic Modelling respectively and delivered by Prof. Abhay Kumar Singh, IIT (ISM) Dhanbad and Prof. N.K. Jana, IIT (ISM) Dhanbad. .

Next, after the lunch break, a practical demonstration (from 02:00 PM to 03:00 PM) was delivered by Prof. B.S. Kushvah, IIT (ISM) Dhanbad.



IIT (ISM) Dhanbad

Under
Synergistic Training program Utilizing the Scientific & Technological
Infrastructure
An initiative of Department of Science & Technology (DST), Govt. Of India
Organized by
Department of Mathematics and Computing , IIT (ISM) Dhanbad



सत्यमेव जयते
Department of Science and Technology
Ministry of Science and Technology
Government of India

DST, Govt of India

Following that, the certificate distribution ceremony took place, with Prof. Sagar Pal, Dean (R&D), IIT (ISM) as 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 benefited from the program and very happy with the arrangement made during the training program. In general participants enjoyed the accommodation and food during their stay at IIT (ISM) Dhanbad. 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.

Prof. Sagar Pal
Project Coordinator

Prof. S. P. Tiwari
Program Coordinator

Prof. B. S. Kushvah
Program Co-coordinator