

A Technical Report
On
National Workshop
on
Foundation Course on Mathematics and Research Methodology
(FCMRM-2024)
16/12/2024 to 21/12/2024

Submitted by
Department of Mathematics

Organized by
Department of Mathematics & IQAC
NSCBM Govt. College Hamirpur, H.P.

Sponsored by
Indian Science Congress Association, Shimla Chapter
&
HIM Science Congress Association.

The Department of Mathematics & IQAC at NSCBM Govt. College Hamirpur hosted a six-day National workshop from December 16 to December 21, 2024, entitled "Foundation Course on Mathematics and Research Methodology " organised to commemorate the 137th birth anniversary of the Genius Mathematician, Srinivasa Ramanujan sponsored by Indian Science Congress Association, Shimla Chapter & HIM Science Congress Association. The workshop featured distinguished resource persons from different states/UT of Himachal Pradesh, Jammu & Kashmir, Punjab and Haryana included Dr. Ramesh Kumar Vats (HOD, Department of Mathematics and Scientific Computing, NIT Hamirpur), Dr. Deepak Pathania, Central University of Jammu, J&K, Dr. Pawan Sharma (Department of Mathematics and Scientific Computing, NIT Hamirpur), Dr. K.L.Verma (Retd. Principal), Dr. Sangeet Pathak (SGTB Khalsa College, Anandpur Sahib, Punjab), Dr. Gaurav Sharma (Govt. College Beetan, Dist. Una, H.P.), Dr. Rohit Gandhi(Govt. College Indora, Dist. Kangra, H.P.), Dr. Rajesh Saini (Gandhi Memorial National College, Haryana), Dr. Manjeet Kumar (Dr. B.R. Ambedkar, Govt. College Dabwali, Dist. Sirsa, Haryana), Dr. Pankaj Thakur (Dean Research, ICFAI University, Baddi), Dr. Sunil Kumar Sharma (N.S.C.B.M. Govt. College Hamirpur). Following are the details of the workshop.

Inauguration (Welcome Ceremony)

On December 16, at 9:30 AM, the National workshop on " Foundation Course on Mathematics and Research Methodology " (FCMRM-2024) held at APJ Abdul Kalam conference hall of our college . The inauguration was graced by the esteemed presence of Dr. Pramod Singh Patial , Patron of the national workshop and Principal of our college, Dr. K.L. Verma, Retd. Principal as the Chief Guest, and, Guest of Honours Dr. A.S. Banyal, Principal Govt. College Sujampur Tihra and Dr. Vijay Thakur, Principal Govt. College Bhoranj, Dr. Sanjay Kango, Head of the Department and convener of the workshop, Dr. Poonam Sharma, Co-convener, organising secretaries Dr. Ashok Kumar, Dr. Nirmal Singh and Dr. Virender Pratap Singh , Academic Coordinator, Dr. Sunil Kumar Sharma. Total 120 participants from UG & PG classes participated in the workshop.





(Keynote address by Dr. K.L. Verma, during the National Workshop)

Day 1 to Day 6

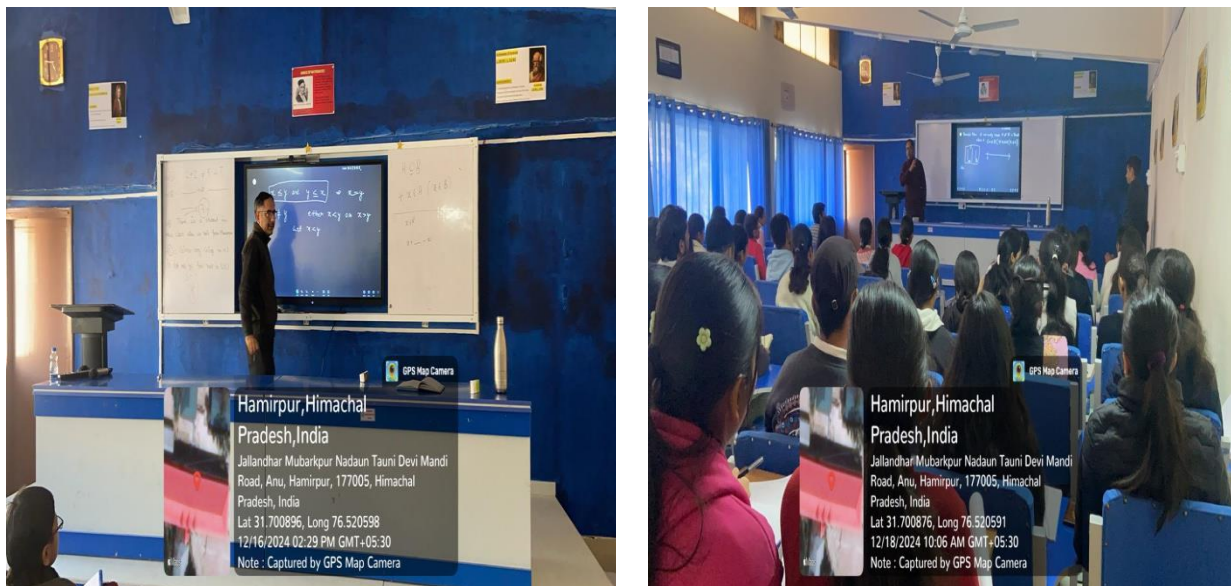
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Dr. Sangeet Pathak (SGTB Khalsa College, Anandpur Sahib, Punjab), delivered lectures on Foundations in Mathematics. Dr. Sangeet Pathak nicely explained the idea of writing English statements in terms of mathematics statements using quantifiers. Dr. Pathak talked about negation, converse, contrapositive, implication of mathematical statements using day to day life example, and explained the concepts like sets, functions, equivalence of statements and so on. Dr. Rohit Gandhi (Govt. College Indora, Dist. Kangra, H.P.), delivered lectures on Real Analysis. He explained the basic definitions of real analysis using quantifiers like Law of Trichotomy, upper bound, bounded above, least upper bound, LUB property, Archimedean property etc. He gives a geometric approach to understand these definitions. Dr. Gaurav Sharma (Govt. College Beetan, Dist. Una, H.P.), delivered lectures on Symmetric Groups, Binary composition, Groups, subgroups and Cosets. He focused on proving theorems by asking questions to students. He also used some models to explain the concepts of symmetric groups. Dr. Sunil Kumar Sharma (NSCBM. Govt. College Hamirpur) talked about linear equations and their solution sets. He gave the geometrical representation of linear equations with their solution sets. Dr. Deepak Pathania Department of Environment Science, Central University of Jammu & President of HIM Science Congress Association, shared his views on Current environmental issues. Dr. Rajesh Saini (Gandhi Memorial National College, Ambala Cant. Haryana), delivered his talk on programming in MATLAB. He motivates the students to write a programme in MATLAB. Dr. Manjeet Kumar (Dr. B.R. Ambedkar, Govt. College Dabwali, Dist. Sirsa, Haryana), provides an insightful lecture on Scientific Manuscripts Writing In LaTeX. He guided the student how to write a project/Research paper/Article by using LaTeX. He also demonstrate the LaTeX hands on tool in the computer lab. Dr. Pawan Kumar Sharma (Department of Mathematics and Scientific Computing, NIT Hamirpur), delivered his lecture on Vedic mathematics. He discussed the various techniques to solve mathematical problems without using calculator. Dr. Ramesh Kumar Vats

(HOD, Department of Mathematics and Scientific Computing, NIT Hamirpur), shared his views with the participants on How to write research projects? He shared his own research experience with the participants and also guided them to write a research paper/research article/chapter in book. Participants asked various questions related to the research with him and he nicely explained each query. Dr. Pankaj Thakur (Dean Research, ICFAI University, Baddi), delivered an online session on “How to write research paper”? He shared his own research experience with the participants. Everyday 9:30 am to 10:00am students discussed their doubts with fellow participants or speakers.



(Foundation sessions by Dr. Sangeet Pathak (SGTB Khalsa College, Anandpur Sahib, Punjab)



(Real Analysis sessions by Dr. Rohit Gandhi, Govt. College Indora, Dist. Kangra, H.P.)

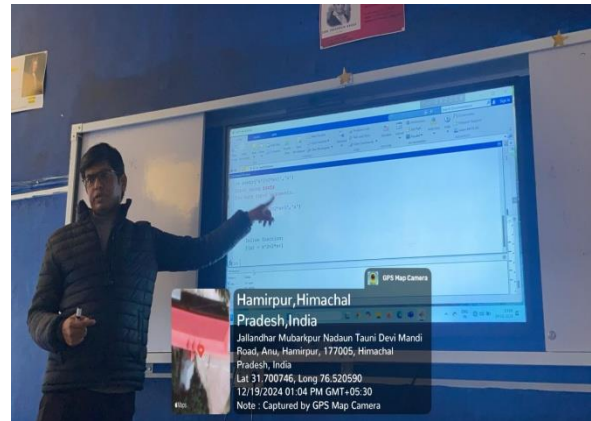
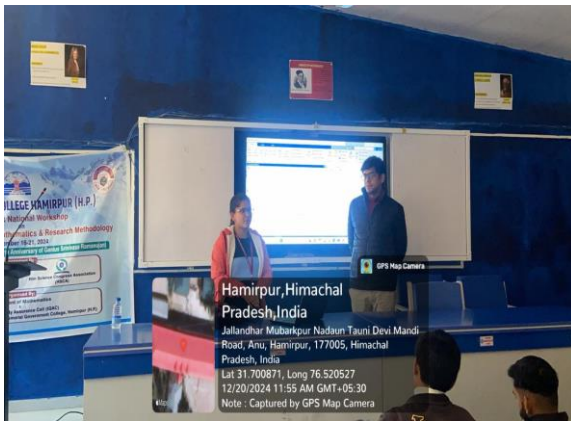


(Algebra sessions by Dr. Gaurav Sharma, Govt. College Beetan, Dist. Una, H.P.),



(LaTeX hand on tool sessions by Dr. Manjeet Kumar ,

Dr. B.R. Ambedkar, Govt. College Dabwali, Haryana)



(MATLAB sessions by Dr. Rajesh Saini, Gandhi Memorial National College, Ambala Cant. Haryana)



(Vedic Ganit session by Dr. Pawan Sharma, Department of Mathematics and Scientific Computing, NIT Hamirpur)



(How to write research project session by Dr. Ramesh Kumar Vats, HOD Department of Mathematics and Scientific Computing, NIT Hamirpur)

Valedictory Session (21/12/2024)

At the end of the sessions, a valedictory function was organized. The event was graced by the esteemed presence of Dr. H.S. Jamwal (Retd. Principal) as the Chief Guest. Dr. G.C. Rana (Principal, Govt. College Dhaneta, H.P.) and Retd. Prof. J.P. Agnihotri were the Guests of Honor for the valedictory ceremony. Oral feedback was provided by the participants during the session. A brief report on the national workshop was presented by Dr. Sunil Kumar Sharma. The Vote of Thanks was delivered by Ms. Sakshi, a 2nd-semester M.Sc. Mathematics student and participant of the workshop. The event concluded with the National Anthem.



Concluding Remarks:

Total 120 students participated in the camp and the camp completed successfully as per the scheduled time table. Students were actively responding right from the beginning of the camp and many students showed remarkable improvement by the end of the workshop. The overall feedback of the students was overwhelming positive and many students requested to organize such a camp every year.

