Outreach & Dissemination Services Office

CSIR – Central Building Research Institute

Roorkee – 247667 (UK)

Training Program on

'Earthquake Retrofitting Techniques and DPR Preparation'

23rd-27th March, 2026

Organized under the aegis of CSIR Integrated Skill Initiative

The **CSIR–Central Building Research Institute (CSIR-CBRI), Roorkee**, in collaboration with the **Himachal Pradesh State Disaster Management Authority (HPSDMA)**, has conducted a five-day advanced Skill Development Training Programme on "**Earthquake Retrofitting and Disaster Preparedness Report (DPR) Preparation**" from **23-27 March 2026** under the CSIR Skill Development Initiative, the training was coordinated by **Er**. **Ashish Pippal**, Principal Scientist, CSIR-CBRI. The programme aims to strengthen professional capacity for the development of earthquake-safe and disaster-resilient infrastructure. A total of **30 participants from different districts of Himachal Pradesh** took part in the programme. The participants include engineers and technical professionals engaged in planning, design, on site retrofitting and implementation of infrastructure projects in seismically vulnerable regions.

Building on the success of the earlier programme, **CSIR–Central Building Research Institute (CSIR-CBRI), Roorkee** once again conducted a special on-site practical demonstration of live house retrofitting under the expert guidance of its scientists. This continued initiative further reinforces the Institute's leadership in disaster mitigation research and its sustained commitment to translating advanced scientific knowledge into practical field applications.

Exhibition Gallery visit and Lab visit

The inaugural session was graced by eminent scientists and experts including **Prof. R. Pradeep Kumar, Director, CSIR-CBRI; Dr. D. P. Kanungo, Chief Scientist; and Er. Ashish Pippal, Principal Scientist** and Training Coordinator. Welcoming the participants, Er. Ashish Pippal outlined CSIR-CBRI's core mandate, advanced research infrastructure, and key contributions to disaster-resilient construction, while briefly highlighting the **successful implementation of live retrofitting demonstrated during the first training programme**. Dr. D. P. Kanungo delivered an insightful session on earthquake dynamics, seismic risks, and mitigation strategies. Addressing the gathering, Prof. R. Pradeep Kumar emphasized the significance of scientifically validated retrofitting practices and earthquake **safety interventions to minimize loss of life and property in seismically sensitive regions**, and encouraged participants to adopt and disseminate these technologies at the grassroots level, particularly in states like Himachal Pradesh.

The Day One of the training programme, a technical lecture was delivered by **Dr. Ajay Chourasia, Chief Scientist, CSIR-CBRI**, on **Design of earthquake-resistant buildings for Hills**, He elaborated on the distinct challenges posed by hilly terrains, such as slope instability, weak soil conditions, and the amplification of seismic forces. Emphasis was laid on careful site selection, appropriate foundation design, and effective slope stabilization measures. He further discussed the need for regular building configurations, the use of lightweight construction materials, and the provision of adequate lateral load-resisting systems. Additionally, he highlighted common construction shortcomings and underscored the importance of strict compliance with Indian Standards to ensure structural safety in earthquake-prone hill regions.


The second lecture was delivered by **Ar. S.K. Negi, Retired Chief Scientist, CSIR-CBRI**, delivered a lecture on **Building Bye-Laws for Himachal Pradesh**. He outlined the essential provisions pertaining to land use, permissible building height, setbacks, structural safety, and disaster resilience in hilly regions. The session also focused on regulatory norms related to seismic safety, environmental safeguards, and approval processes. He stressed the need for strict adherence to these bye-laws to promote planned, safe, and sustainable development across the state.


Lab Visit

Day 2:

On the second day of the training programme, a lecture was delivered by **Er. H. K. Jain, Retired Senior Technical Officer**, on **Quality Assurance and Control (QA/QC**). He elaborated on the significance of structured quality planning, rigorous material testing, and continuous process monitoring to ensure the durability and safety of structures. The session clearly distinguished between quality assurance, which focuses on preventive measures, and quality control, which involves inspection and testing. He further emphasized strict adherence to standards, proper documentation practices, and effective on-site supervision to achieve and maintain high construction quality.

The second technical lecture was delivered by **Dr. Ajay Chourasia, Chief Scientist, CSIR-CBRI**, on **Construction quality and improvements.** He discussed the critical role of quality management in enhancing the performance and longevity of structures, highlighting best practices in construction techniques, material selection, and workmanship. The lecture also focused on identifying common on-site issues and adopting corrective measures to improve overall construction standards. Emphasis was placed on integrating quality assurance mechanisms and continuous improvement approaches to achieve safe, reliable, and durable built environments.


The third lecture was delivered by **Dr. Shailesh Agrawal, Former Ex. Director (BMTPC)/Rt. Sr. Principal Scientist CSIR-CBRI** on **Emerging Technologies for a Better Built Environment.** The lecture showcased recent advancements in construction technologies, including the use of smart materials, digital design platforms, automation, prefabricated construction techniques, and sustainable solutions. It emphasized how these innovations contribute to enhancing efficiency, strengthening resilience, and promoting sustainability in the built environment.


Rural Park and Lab visit







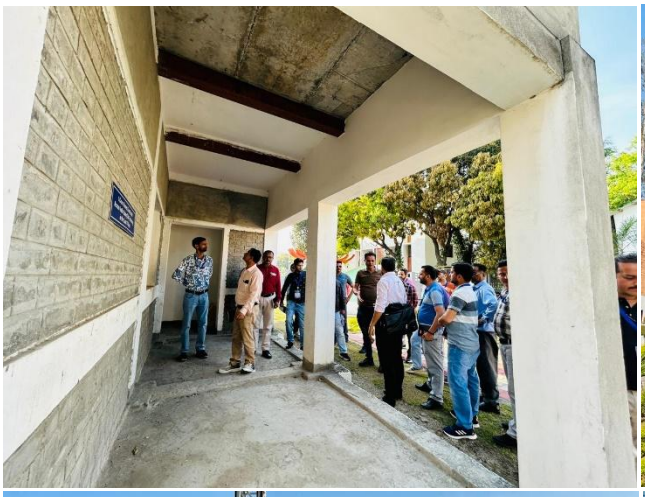

Day 3:

The first lecture was delivered by **Er. M. M. Dalbehera, Principal Scientist**, on **Construction Technologies for Hilly Regions**, he addressed the challenges associated with steep gradients, complex terrain, and high seismic vulnerability in hilly regions. He elaborated on appropriate foundation solutions, effective slope stabilization techniques, and the use of lightweight, locally available materials. Emphasis was placed on adopting safe construction practices, ensuring proper drainage systems, and maintaining structurally efficient building configurations. The session offered valuable practical insights for creating resilient and sustainable infrastructure in hill areas.


The second & third lecture on the third day of the training programme was delivered by **Er. Ashish Kapoor, Senior Scientist,** on the **Use of non-destructive testing methods in structural assessment** The first session, on the use of non-destructive testing methods in structural assessment, covered techniques such as rebound hammer, ultrasonic pulse velocity, and correlation methods to assess the strength and integrity of existing structures without causing any damage. The importance of detailed condition assessment for detecting cracks, deterioration, and structural deficiencies was emphasized to ensure safety and serviceability and second lecture on **Design of Retrofitting measures** focused on strengthening strategies for structurally deficient and earthquake-vulnerable buildings. It included methods such as jacketing, incorporation of shear walls, bracing systems, and foundation strengthening. The session highlighted the necessity of proper assessment, structural analysis, and adherence to relevant codes for implementing effective and durable retrofitting solutions.


Demonstration Park Visit





Day 4

As part of the evaluation process, an assignment was conducted for the participants to assess their practical understanding of the training. The exercise involved preparing a hand-sketched drawing of a building with appropriate dimensions, along with stress mapping to identify critical structural zones. Participants were also required to analyze and highlight existing issues or shortcomings in the structure and propose suitable rectification measures and improvements. This assessment aimed to evaluate their ability to apply theoretical knowledge to real-world scenarios.

Retrofitting site Visit

Day 5:

The first lecture was delivered by **Er. Sugam Prajapati, Technical officer**, on the **Preparation and Understanding of Technical Drawings**. He provided an overview of the fundamentals involved in reading and interpreting architectural and structural drawings, covering plans, elevations, sections, and detailed components. The session focused on the use of standard symbols, scales, dimensions, and notations commonly adopted in construction drawings. He further emphasized the importance of accuracy and proper coordination among different drawings to ensure smooth and efficient execution at site.

Er. I.A. Siddiqui, Sr. Technical Officer delivered an insightful lecture on **Construction Cost Management and Recent Trends in DPR Preparation**. He emphasized the significance of precise cost estimation, effective budgeting, rate analysis, and financial oversight in ensuring efficiency and transparency in projects. The session also addressed contemporary approaches to Detailed Project Report (DPR) preparation, including data-driven planning, risk evaluation, sustainability aspects, and adherence to updated standards and guidelines.

Lab Visit


Valediction

The **Valedictory Ceremony** marked the successful conclusion of the five-day Training Programme for engineers and professionals from Himachal Pradesh. The session began with opening remarks by **Dr. Ajay Chaurasia, Chief Scientist** and was graced by **Dr. D. P. Kanungo**, **Chief Scientist** and **Er. Ashish Pippal**, **principal scientist**, whose presence added significance to the occasion. **Director Prof. R. Pradeep Kumar** congratulated the participants for completion their active involvement throughout the programme.

The training effectively bridged the gap between research and field application, with hands-on retrofitting serving as a key highlight. Participants shared positive feedback and were awarded certificates in recognition of their participation. The programme concluded with a Vote of Thanks by Dr. D. P. Kanungo, expressing gratitude to all contributors.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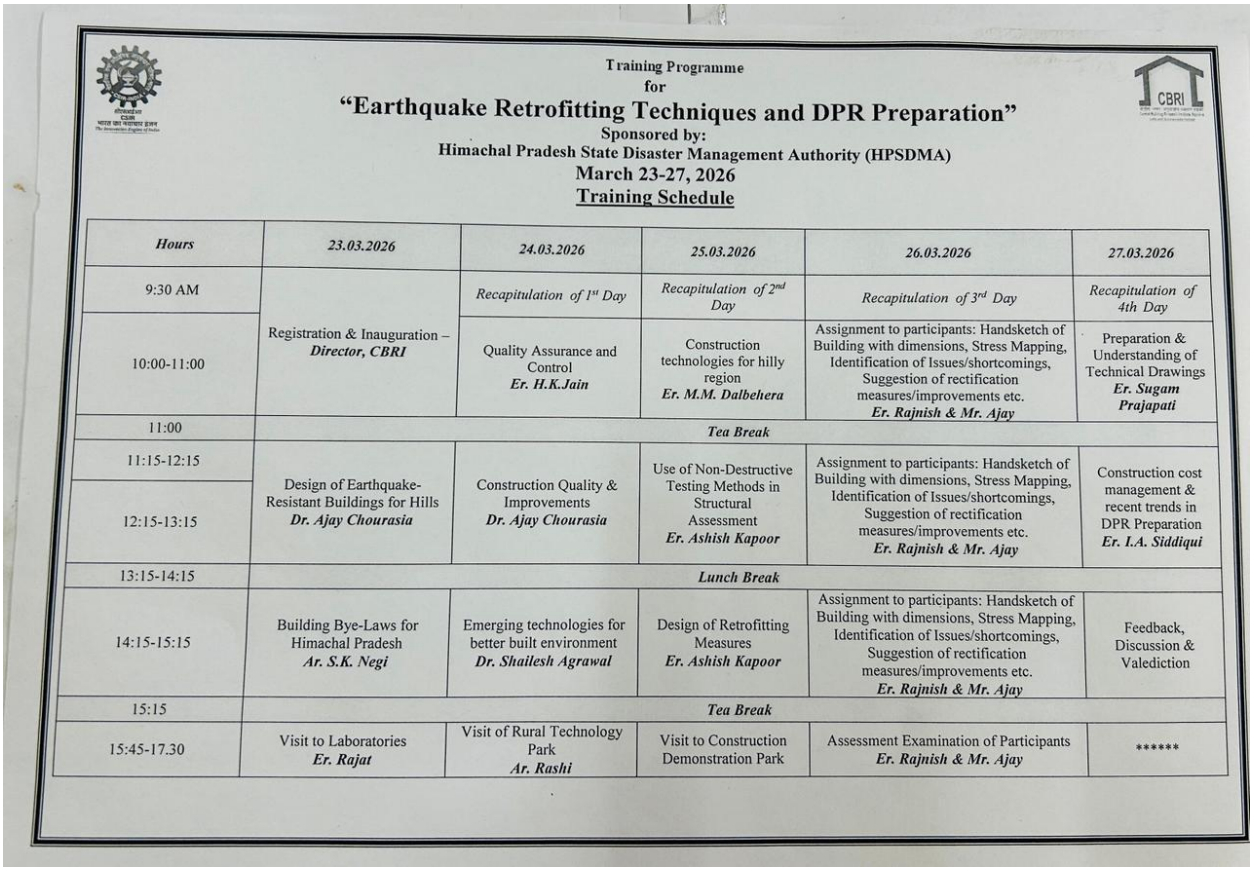
Schedule



Training Programme
for
"Earthquake Retrofitting Techniques and DPR Preparation"
Sponsored by:
Himachal Pradesh State Disaster Management Authority (HPSDMA)
March 23-27, 2026
Training Schedule

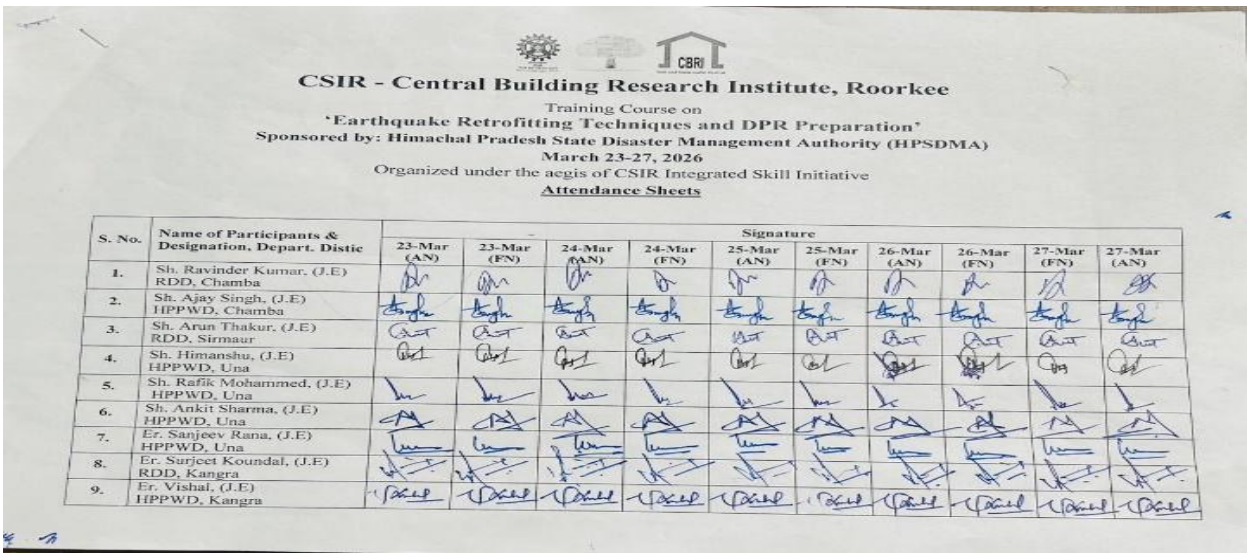
Hours	*23.03.2026*	*24.03.2026*	*25.03.2026*	*26.03.2026*	*27.03.2026*
9:30 AM	Registration & Inauguration – ***Director, CBRI***	*Recapitulation of 1st Day*	*Recapitulation of 2nd Day*	*Recapitulation of 3rd Day*	*Recapitulation of 4th Day*
10:00-11:00		Quality Assurance and Control ***Er. H.K.Jain***	Construction technologies for hilly region ***Er. M.M. Dalbehera***	Assignment to participants: Handsketch of Building with dimensions, Stress Mapping, Identification of Issues/shortcomings, Suggestion of rectification measures/improvements etc. ***Er. Rajnish & Mr. Ajay***	Preparation & Understanding of Technical Drawings ***Er. Sugam Prajapati***
11:00	***Tea Break***				
11:15-12:15	Design of Earthquake-Resistant Buildings for Hills ***Dr. Ajay Chourasia***	Construction Quality & Improvements ***Dr. Ajay Chourasia***	Use of Non-Destructive Testing Methods in Structural Assessment ***Er. Ashish Kapoor***	Assignment to participants: Handsketch of Building with dimensions, Stress Mapping, Identification of Issues/shortcomings, Suggestion of rectification measures/improvements etc. ***Er. Rajnish & Mr. Ajay***	Construction cost management & recent trends in DPR Preparation ***Er. I.A. Siddiqui***
12:15-13:15					
13:15-14:15	***Lunch Break***				
14:15-15:15	Building Bye-Laws for Himachal Pradesh ***Ar. S.K. Negi***	Emerging technologies for better built environment ***Dr. Shailesh Agrawal***	Design of Retrofitting Measures ***Er. Ashish Kapoor***	Assignment to participants: Handsketch of Building with dimensions, Stress Mapping, Identification of Issues/shortcomings, Suggestion of rectification measures/improvements etc. ***Er. Rajnish & Mr. Ajay***	Feedback, Discussion & Valediction
15:15	***Tea Break***				
15:45-17.30	Visit to Laboratories ***Er. Rajat***	Visit of Rural Technology Park ***Ar. Rashi***	Visit to Construction Demonstration Park	Assessment Examination of Participants ***Er. Rajnish & Mr. Ajay***	******

List of Participates

Sr. No	Name of Officer	District	Department	Designation	Mobile No.
1	Sh. Ravinder Kumar	Chamba	Rural Development Department	Junior Engineer	7807288412
2	Sh. Ajay Shingh	Chamba	Himachal Pradesh Public Works Department	Junior Engineer	8219175674
3	Sh. Arun Thakur	Sirmaur	Rural Development Department	Junior Engineer	9805500252
4	Sh. Himanshu	Una	Himachal Pradesh Public Works Department	Junior Engineer	9459170261
5	Sh. Rafik Mohammed	Una	Himachal Pradesh Public Works Department	Junior Engineer	8894588726
6	Sh. Ankit Sharma	Una	Himachal Pradesh Public Works Department	Junior Engineer	8178339373
7	Er. Sanjeev Rana	Una	Himachal Pradesh Public Works Department	Junior Engineer	7986278187
8	Er. Surjeet Koundal	Kangra	Rural Development Department	Junior Engineer	9816478558
9	Er. Vishal	Kangra	Himachal Pradesh Public Works Department	Junior Engineer	6230788190
10	Sh. Desh Raj	Bilaspur	Rural Development Department	Junior Engineer	7018219147
11	Sh. Vijay Kumar	Bilaspur	Rural Development Department	Junior Engineer	9418135330
12	Sh. Rajender Kumar	Bilaspur	Rural Development Department	Junior Engineer	8219830224
13	Sh. Prashant ranaut	Bilaspur	Urban Development Department	Junior Engineer	7807217477
14	Sh. Rajesh Sharma	Bilaspur	Rural Development Department	Junior Engineer	7818100725
15	Sh. Surya Katwal	Hamirpur	Urban Development Department	Junior Engineer	8219336571
16	Sh. Abhishek Sharma	Hamirpur	Urban Development Department	SDS Specialist	7018602217
17	Sh. Tilak Raj	Hamirpur	Urban Development Department	Junior Engineer	8219676200
18	Sh. Vishal Sharma	Kangra	Rural Development Department	Technical Assistant	7006398608

19	Sh. Anil Kumar	Kangra	Rural Development Department	Technical Assistant	9816317387
20	Sh. Yashpal Sharma	Shimla	Rural Development Department	Junior Engineer	9805606970
21	Sh .Sudesh Kumar	Shimla	Rural Development Department	Junior Engineer	9418484060
22	Sh. Bhupinder Pal	Mandi	Himachal Pradesh Public Works Department	Junior Engineer	9459943369
23	Sh. Sudershan	Lahaul & Spiti	Rural Development Department	Junior Engineer	94184-11745
24	Sh. Surender	Lahaul & Spiti	Rural Development Department	Junior Engineer	8219031900
25	Sh. Inder Singh	Lahaul & Spiti	Rural Development Department	Junior Engineer	94599-40473
26	Sh. Shivam Thakur	Lahaul & Spiti	Jal Shakti Vibhag	Junior Engineer	70095-87121
27	Sh. Sidharth	Mandi	Urban Development Department	Junior Engineer	7018264105
28	Sh. Rishabh Mrigpuri	Mandi	Urban Development Department	Junior Engineer	9816618461
29	Sh. Pawan Singh	Bilaspur	Rural Development Department	Technical Assistant	8219987476
30	Sh. Kushal Thakur	Kullu	Jal Shakti Vibhag	Junior Engineer	9805634256

Attendence sheet



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Sponsored by: Himachal Pradesh State Disaster Management Authority (HPSDMA)

March 23-27, 2026

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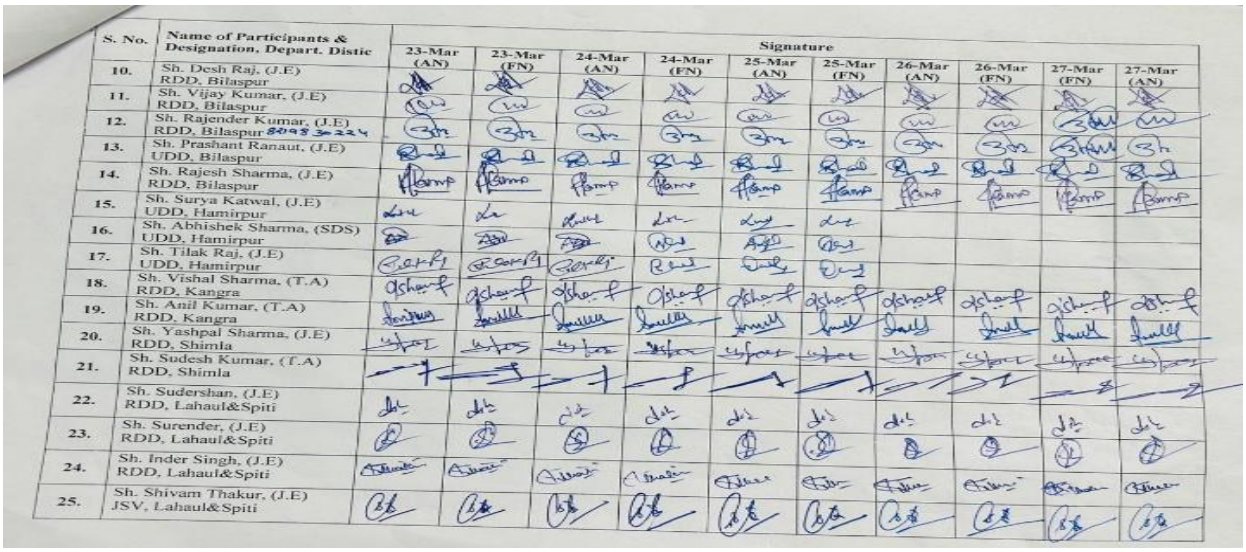
Attendance Sheets

S. No.	Name of Participants & Designation, Depart. Distic	Signature									
		23-Mar (AN)	23-Mar (FN)	24-Mar (AN)	24-Mar (FN)	25-Mar (AN)	25-Mar (FN)	26-Mar (AN)	26-Mar (FN)	27-Mar (FN)	27-Mar (AN)
1.	Sh. Ravinder Kumar, (J.E) RDD, Chamba										
2.	Sh. Ajay Singh, (J.E) HPPWD, Chamba										
3.	Sh. Arun Thakur, (J.E) RDD, Sirmaur										
4.	Sh. Himanshu, (J.E) HPPWD, Una										
5.	Sh. Rafik Mohammed, (J.E) HPPWD, Una										
6.	Sh. Ankit Sharma, (J.E) HPPWD, Una										
7.	Er. Sanjeev Rana, (J.E) HPPWD, Una										
8.	Er. Surjeet Koundal, (J.E) RDD, Kangra										
9.	Er. Vishal, (J.E) HPPWD, Kangra										



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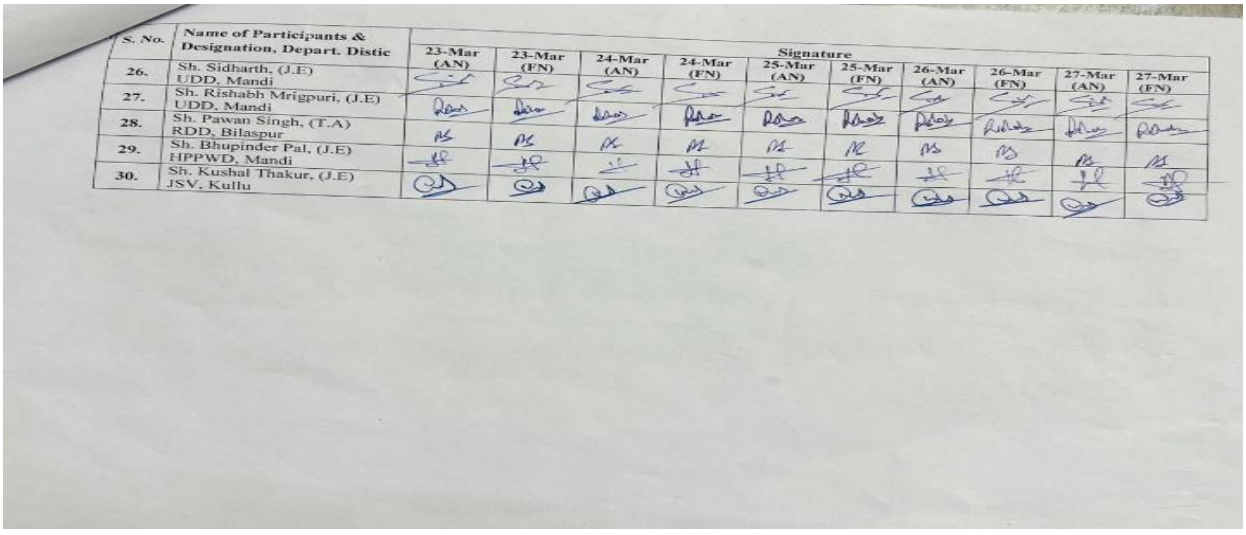
10.	Sh. Desh Raj, (J.E) RDD, Bilaspur										
11.	Sh. Vijay Kumar, (J.E) RDD, Bilaspur										
12.	Sh. Rajender Kumar, (J.E) RDD, Bilaspur 8098 3224										
13.	Sh. Prashant Ranaut, (J.E) UDD, Bilaspur										
14.	Sh. Rajesh Sharma, (J.E) RDD, Bilaspur										
15.	Sh. Surya Katwal, (J.E) UDD, Hamirpur										
16.	Sh. Abhishek Sharma, (SDS) UDD, Hamirpur										
17.	Sh. Tilak Raj, (J.E) UDD, Hamirpur										
18.	Sh. Vishal Sharma, (T.A) RDD, Kangra										
19.	Sh. Anil Kumar, (T.A) RDD, Kangra										
20.	Sh. Yashpal Sharma, (J.E) RDD, Shimla										
21.	Sh. Sudesh Kumar, (T.A) RDD, Shimla										
22.	Sh. Sudershan, (J.E) RDD, Lahaul&Spiti										
23.	Sh. Surender, (J.E) RDD, Lahaul&Spiti										
24.	Sh. Inder Singh, (J.E) RDD, Lahaul&Spiti										
25.	Sh. Shivam Thakur, (J.E) JSV, Lahaul&Spiti										



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