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NCERT

Report Of National Conference
on
"Recent Advances in Interdisciplinary Science"
NCRAIS - 2025

7-9th February, 2025

CONFERENCE CO-ORDINATORS

DR. CHAKRADHAR BEHERA

DR. SANTOSH KUMAR | MR. L.S. CHOUHAN

(PAC-23.43)

2024-25

Regional Institute of Education, Bhopal

National Council of Educational Research and Training

(Ministry of Education Govt. of India)

Shyamla Hills, Bhopal – 462002, India

http://www.riebhopal.nic.in

REPORT OF NATIONAL CONFERENCE

ON

RECENT ADVANCES IN INTERDISCIPLINARY SCIENCE

(PAC-23.43)

7-9th February, 2025

Conference Coordinators

Dr.Chakradhar Behera
Dr. Santosh Kumar
Mr. L. S. Chouhan

Regional Institute of Education
National Council of Educational Research and Training
Shyamala Hills, Bhopal-462002

NATIONAL CONFERENCE ON RECENT ADVANCES IN INTERDISCIPLINARY SCIENCE

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Prof. Ratnamala Arya
Prof. Ayushman Goswami

Conference Coordinators
Dr. Chakradhar Behera
Dr. Santosh Kumar
Mr. L. S. Chouhan

Preface

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Interdisciplinary science has emerged as a crucial driver of modern research, integrating knowledge from various fields such as physics, chemistry, biology, engineering, and computational sciences. This holistic approach is essential for developing novel solutions in areas like sustainable energy, materials science, environmental sustainability, healthcare technologies, and artificial intelligence. The conference provides a unique opportunity for researchers to share their insights, explore new methodologies, and establish collaborations that push the boundaries of scientific discovery.

In the journey towards reshaping the Indian educational landscape, the National Education Policy (NEP) 2020 serves as a guiding framework to foster innovation, inclusivity, and academic excellence. One of the critical aspects of NEP 2020 is the emphasis on interdisciplinary in education by breaking the boundaries for fostering holistic development with experiential learning and the development of critical thinking skills. To support this vision, the NCERT has taken a significant step in the support of crating interdisciplinary environment in the form of research, development and extension activities for knowing the basic challenges in employing curriculum and it's designing.

The National Conference on Recent Advances in Interdisciplinary Science (NCRAIS-2025) aligns itself with these goals by serving as a comprehensive platform for practitioners, researchers, and policymakers. The conference aims to facilitate the exchange of ideas, best practices, and cutting-edge research to transform science education and integrate interdisciplinary science (IDS) into the national curriculum. While traditional, isolated approaches to science education have had their merits, they struggle to capture the inherent interconnectedness of different disciplines. NEP 2020 stresses the need to move beyond rote memorization and compartmentalized knowledge. For example, studying the human body in isolation, without considering the interplay between biology, chemistry, and physics, can hinder students' understanding of its holistic functions.

The NCRAIS conference seeks to address this pedagogical barrier by exploring innovative strategies for incorporating IDS into the existing curriculum framework. Our focus will be on identifying practical approaches that seamlessly merge diverse scientific principles, in line with NEP 2020's emphasis on competency-based learning and holistic development. Moreover, these approaches must take into account potential resource limitations and logistical challenges during implementation. The RAIS conference aims to be more than a platform for sharing knowledge. It aims to be a catalyst for a paradigm shift in science education, echoing NEP 2020's vision of a holistic and integrated approach to learning. By fostering collaboration and promoting interdisciplinarity, we can equip future generations with the scientific literacy and critical thinking skills necessary to thrive in an interconnected world. Let us transcend traditional disciplines, embrace the power of interdisciplinary science, and redefine learning to ignite a passion for scientific exploration in line with the aspirations of NEP 2020.

We are privileged to have eminent speakers, distinguished researchers, and young scholars contributing their valuable insights to this event. The papers and presentations included in this conference showcase a wide spectrum of pioneering research, reflecting the immense potential of interdisciplinary collaboration. We sincerely hope that the discussions and knowledge exchanged during this conference will inspire future research endeavors and pave the way for groundbreaking innovations. We extend our heartfelt gratitude to all the participants, keynote speakers, organizing committee members, and sponsors for their invaluable contributions to making this event a grand success.

We look forward to an intellectually stimulating conference that will spark new ideas and partnerships, further strengthening the scientific community's commitment to interdisciplinary research

Dr. Chakradhar Behera
(Programme Coordinator)

ACKNOWLEDGEMENT

We humbly acknowledge the grace and blessings of Almighty God, whose guidance and support have been ever-present throughout our journey. We are grateful for the strength, wisdom, and providence bestowed upon us, enabling us to undertake this endeavor with purpose and determination.

We extend our heartfelt sincere gratitude to the Honorable Director Prof. D.P. Saklani, for his constant encouragement, support and guidance to make the conference a grand success. His contribution played a crucial role in the success of the event, enabling us to facilitate meaningful discussions, engage distinguished speakers, and provide an enriching experience for all participants.

We are deeply grateful to Professor Jaydip Mandal, Principal of RIE, whose guidance and visionary leadership throughout the different aspects of the conference to make it grand success in accordance with the aspiration of National Education Policy 2020. Their leadership has created an environment conducive to professional development and educational advancement.

We extend our sincere gratitude to Professor Chitra Singh, Head of Extension Education, for her kind support throughout the conference and standing by each and every moment for which it could be possible. Her invaluable assistance has been instrumental in ensuring the success of this endeavor.

We are deeply grateful to the Head of the Department of Educational Science and Mathematics (DESM), Prof. Rashmi Singhai, for her strategic direction and constant encouragement, which have played a vital role in bringing to conference to action.

A special note of thanks is due to the resource persons who have acted as the screening committee members to screen the received papers for the conference, namely Prof. C.K.Ghosh, former professor of IGNOU, Kolkata, Prof. Suresh Chand, former Dean of DAV Indore, Prof. Animesh Mohapatra, RIE, Bhubaneswar, Prof. I. P. Agrawalla, Retd. Prof of RIE Bhopal, Prof.

V. P. Gupta, Retd. Prof. of RIE Bhopal, as external reviewer and Prof. Chita Singh, Prof. Rashmi Singhai, Dr. Santosh Kumar, Dr. Kalpana Maski, Mr. L.S. Chouhan, Dr. Mukesh Kumar, Dr. Ramesh Sethy, Dr. Manoj Mandal as internal reviewer; whose expertise and dedication on the subject matter became instrumental to make this reviewing workshop fruitful.

We extend our sincere gratitude to all honorable dignitaries of the conference namely Prof. Siva Umapathy, J C Bose fellow professor of IISc, Bangalore and former Director of IISER, Bhopal, Prof. Gobardhan Das, Director, IISER, Bhopal, Prof. P.K. Chand, former Vice Chancellor, North Orissa University, Prof. K.Prasad, former Proctor, Aryabhatta Knowledge University and Prof. of Bhagalpur Univeisity, Prof. Asutosh Kumar Singh, Director, Indian Institute of Information Technology, Bhopal, Prof. Mukul C. Bora, Director, DGUIST, Assam for their valuable presence along with invaluable talk on the different key concept of the interdisciplinary science as per NEP-2020 makes it truly inspirational for the success of the national event.

We extend our heartfelt appreciation to our esteemed keynote speakers, invited guests, and session chairs for sharing their expertise and insights, enriching the discussions with their valuable perspectives. Their contributions have played a crucial role in shaping the intellectual depth of this conference.

A special thanks to Mr. L.S Chouhan, Dr. Ganga Mahto, Dr. Mukesh Kumar, Dr. Manoj Mandal, and Dr. Ramesh Sethy for their unconditional support at each and every moment of the event for which it could be possible.

We extend our sincere gratitude to the volunteers and administrative staffs of RIE for their dedicated support and seamless coordination throughout the National conference on “Recent advances in Interdisciplinary Science” which make it truly a national event. Special thanks to Mr. Mahesh Assudani, Administrative Officer of RIE Bhopal for his constant encouragement and support. Their efficiency and professionalism have been instrumental in ensuring the smooth execution of various aspects of the program, contributing significantly to its success. We deeply appreciate their hard work and commitment to excellence.

We also extend our sincere thanks to all the researchers, academicians, and students who have actively participated by submitting and presenting their work. Their enthusiasm and commitment to interdisciplinary science have significantly contributed to the success of this event.

We express our sincere gratitude to all those who contributed to the successful organization of the National Conference on Recent Advances in Interdisciplinary Science (NCRAIS-2025). This conference would not have been possible without the collective efforts of many individuals and institutions dedicated to advancing scientific research and collaboration in the context of NEP 2020.

We hope that the knowledge exchanged during this conference will foster new collaborations, inspire future research, and contribute to scientific advancements across disciplines.

Finally, thank you, everyone for your contribution to this meaningful and transformative endeavor.

Dr. Chakradhar Behera
(Programme Coordinator)

Introduction

The scientific landscape is experiencing rapid change due to groundbreaking research that uncovers the intricate connections between seemingly unrelated fields. In light of this transformation, the National Education Policy (NEP) 2020 calls for a fundamental re-evaluation of educational approaches. The NEP emphasizes the importance of equipping future generations with the skills needed to navigate this interconnected world. The National Conference on Recent Advances in Interdisciplinary Science (NCRAIS) aligns itself with these goals by serving as a comprehensive platform for practitioners, researchers, and policymakers. The conference aims to facilitate the exchange of ideas, best practices, and cutting-edge research to transform science education and integrate interdisciplinary science (IDS) into the national curriculum. While traditional, isolated approaches to science education have had their merits, they struggle to capture the inherent interconnectedness of different disciplines. NEP 2020 stresses the need to move beyond rote memorization and compartmentalized knowledge. For example, studying the human body in isolation, without considering the interplay between biology, chemistry, and physics, can hinder students' understanding of its holistic functions.

The RAIS conference seeks to address this pedagogical barrier by exploring innovative strategies for incorporating IDS into the existing curriculum framework. Our focus will be on identifying practical approaches that seamlessly merge diverse scientific principles, in line with NEP 2020's emphasis on competency-based learning and holistic development. Moreover, these approaches must take into account potential resource limitations and logistical challenges during implementation. The RAIS conference aims to be more than a platform for sharing knowledge. It aims to be a catalyst for a paradigm shift in science education, echoing NEP 2020's vision of a holistic and integrated approach to learning. By fostering collaboration and promoting interdisciplinarity, we can equip future generations with the scientific literacy and critical thinking skills necessary to thrive in an interconnected world. Let us transcend traditional disciplines, embrace the power of interdisciplinary science, and redefine learning to ignite a passion for scientific exploration in line with the aspirations of NEP 2020.

The Rationale

The scientific landscape is currently undergoing significant change as research reveals the intricate connections between different fields. This calls for a re-evaluation of educational

approaches to prepare future generations for the complex and evolving world. Traditional science education is limited in capturing these connections, making it difficult for students to understand the holistic nature of scientific inquiry. In response, the National Conference on Recent Advances in Interdisciplinary Science (RAIS) has emerged. The rationale for RAIS is based on three pillars:

1. *The Rise of Interdisciplinarity*: Scientific advancements now transcend disciplinary boundaries. For example, understanding climate change requires knowledge of atmospheric science, ecology, economics, and social science. Similarly, bioengineering breakthroughs rely on a combination of biology, engineering, and computer science. It is essential to equip students with the ability to think and problem-solve across disciplines.

2. *Redefining Scientific Literacy*: Traditional science education often compartmentalizes knowledge, making it challenging for students to see the bigger picture. RAIS aims to redefine scientific literacy for the 21st century by teaching students to weave knowledge from diverse fields to understand complex phenomena. This requires not only memorizing facts but also analyzing, synthesizing, and applying knowledge across disciplines.

3. *Transforming Curriculum and Pedagogy*: To achieve these goals, a comprehensive reevaluation of science curriculum and pedagogy is necessary. RAIS aims to facilitate a dialogue on innovative strategies for integrating interdisciplinary science (IDS) into the national curriculum. This involves identifying practical pedagogical approaches that seamlessly merge different scientific principles. The conference will also address potential limitations and challenges in implementing IDS initiatives to ensure their successful execution.

NCRAIS aims to be a catalyst for a paradigm shift in science education by focusing on these critical aspects. Through collaboration, knowledge sharing, and an emphasis on interdisciplinarity, we can equip future generations with the necessary tools to thrive in an interconnected world.

Context

The National Conference on 'Recent Advances in Interdisciplinary Science' opens scope for convergence of human resources from diverse disciplines for timely and essential dialogue on the

imperative of interdisciplinary collaboration and innovation. The thematic foci and objectives of the conference are strategically aligned with the National Education Policy 2020, underscoring the significance of interdisciplinary research for addressing complex societal issues. The upcoming opportunity will provide a dynamic platform for teachers, researchers, scientists, and experts to disseminate their research findings, besides engaging not only fruitful discussion but also helping collaborative research. The comprehensive thematic areas encompass broad scientific concepts including advanced materials, nanoscience, sustainable development, and environmental science reflecting multidisciplinary approach to facilitate meaningful knowledge sharing. The objectives of the conference are to prioritize the promotion of innovation, critical thinking as well as sustainable development. It also seeks to contribute to the development of innovative solutions to societal challenges, besides fostering a culture of collaboration, quality research and innovation in interdisciplinary science. This event represent a significant milestone in the unification of diverse disciplines and the advancement of interdisciplinary research.

Objectives

Keeping in view the recommendations of NEP-2020, following objectives have been proposed for inviting research papers:

1. Promote interdisciplinary research and innovation to address societal challenges
2. Foster a culture of collaboration and knowledge sharing among researchers from diverse disciplines
3. Enhance the quality of research and innovation in interdisciplinary science
4. Encourage interdisciplinary approaches to problem-solving and critical thinking
5. Develop innovative solutions for sustainable development and environmental conservation
6. Promote digital literacy and data-driven decision making in interdisciplinary research
7. Foster international collaborations and partnerships in interdisciplinary research
8. Develop ethical and responsible research practices in interdisciplinary science
9. Enhance the accessibility and affordability of interdisciplinary education and research
10. Support the development of innovative start-ups and entrepreneurs in interdisciplinary science

Themes and Sub-themes

1. Interdisciplinary Research Methodologies in light of NCFSE-2023

1.1 Collaborations between Sciences in Schools and Universities: Research and Practice

1.2 Ethical Dimensions in Interdisciplinary Scientific Inquiry: Navigating Challenges

1.3 Integrative Research in Chemistry, Mathematics, and Physics: Best Practices

1.4 Interdisciplinary Studies in Biology, Environmental Science, and Social Science: Research and Teaching

2. Sustainable Development and Environmental Science in light of NEP-2020

2.1 Circular Economy and Waste Management: Pedagogy and Practice

2.2 Climate Change Mitigation and Adaptation: Research and Teaching

2.3 Renewable Energy Technologies: Sustainable Emerging Technologies

2.4 Sustainable Agriculture and Food Security: Interdisciplinary Approaches

3. Interdisciplinary Education and Outreach activities in light of NEP-2020

3.1 Collaborative Research Initiatives and Partnerships: Industry and Community Engagement

3.2 Innovative Teaching Methods for STEM Education and TLM for Interdisciplinary Approaches

3.3 Interdisciplinary Curriculum Development: Beyond the boundaries

4.4 Public Engagement and Science Communication: Outreach and Impact

4. Advanced Materials and Nanoscience

4.1 Advanced, Smart and Functional materials: Synthesis, Characterization and Application

4.2 Curriculum Design for Advanced Materials in School and Higher Education

4.3 Advanced Materials for Energy Storage and Conversion

4.4 Functional materials for Electronics and Photonics

5. Cybersecurity and Privacy in Educational Institutions

5.1 Cybersecurity Governance and Risk Management

5.2 Cybersecurity Literacy and Awareness

5.3 Data Privacy and Protection: Ethical and Legal Implications

5.4 Cyber-Physical Systems and Critical Infrastructure Security: Research and Practice

6. Data-Driven Decision Making in Education

6.1 Computational Modeling and Simulation: Pedagogy and Practice

6.2 Data-Driven Decision Making in School Administration: Best Practices

6.3 Educational Research and Big Data Analytics

6.4 Predictive Analytics for Student Success and Retention

7. Emerging Technologies and Applications

7.1 Artificial Intelligence (AI) and Machine Learning in Education: Pedagogy and Practice

7.2 Internet of Things (IoT) and Smart Systems in Schools: Innovative Applications

7.3 Manufacturing and Automation in Vocational Training: Emerging Technologies

7.4 Nanotechnology and Its Applications: Research and Teaching

8. Health and Biomedical Innovations

8.1 Advanced Materials in Medical Applications: Research and Teaching

8.2 Neurotechnology and Cognitive Science: Interdisciplinary Approaches

8.3 Precision Medicine and Genomics: Curriculum Development

8.4 Telemedicine and Digital Health: Best Practices and Applications

9. Indian Knowledge Systems (IKS) and Local Scientific Practices in the light of NEP-2020

9.1 Integrating Traditional Ecological Knowledge into Science Curriculum

9.2 Science and Society in Ancient India an Interdisciplinary approach in Indian Civilizations

9.3 Promoting Scientific Thinking in Indian Society, based on scientific evidence in the Context of Indian culture.

NATIONAL CONFERENCE ON "RECENT ADVANCES IN INTERDISCIPLINARY SCIENCE"

(February 7-9, 2025)

Regional Institute of Education, National Council of Educational Research and Training, Bhopal

Date	Time			
07/02/2025 (Friday)	10:00-1:00pm	**Common Session (Auditorium, RIE)** Inaugural Session: Prof. Dinesh Prasad Saklani , Director, NCERT, New Delhi Prof. Jaydip Mandal, Principal, RIE, NCERT, Bhopal Special Guest Prof. Gobardhan Das, Director, IISER, Bhopal Keynote Talk-1: Prof. Siva Umapathy, JC Bose Fellow, IISc Bangalore Keynote Talk-2 **:** Prof. P. K. Chand, Former Vice Chancellor, North Orissa University		Rapporteur: Dr. Manoj Mandal Dr. Mukesh Kumar
	1:00-2:00 pm	**LUNCH**		
	2:00-5:30 pm	T.3 Seminar-I (Hall No.-53)	T.1 & T.2 Seminar-II (Hall No.-30)	T.6 & T.8 (Hall No.-49)
	Chairperson	Prof. Chitra Singh	Prof. Suresh Chand	Prof. H.K.Garg
	Co-chairperson	Dr. Santosh Kumar	Dr. R.P Prajapati	Dr. Rashmi Sharma
	Moderator	Dr. Ramesh Sethy	Dr. Kalpana Maski	Dr. Shivalika Sarkar
	Rapporteur	Ms. Shristi Mishra	Dr. Rahul Soni	Ms. Manisha Pandey
	6:00 pm onwards	**Cultural Evening**		
08/02/2025 (Saturday)	10:00-11:30 am	**Common Session (Auditorium, RIE)** Keynote Talk: Prof. K. K Nanda, Director, Institute of Physics, Bhubaneswar Invited Talk: Prof. Kamal Prasad, T. M. Bhagalpur University, former Proctor, Aryabhatta Knowledge University		
	11:30-5:00pm	T.7 (Hall No.-53)	T4 & T5 Seminar-I (HallNo.-30)	T.9 Seminar-I (HallNo.-49)
	Chairperson	Prof. P.B.Sujit	Prof. Kamal Prasad	Prof. V.P. Gupta
	Co-chairperson	Dr. A.K.Garg	Dr. Chakradhar Behera	Dr. Saurabh Kumar
	Moderator	Dr. Manoj Mandal	Dr. Rajat Kaushik	Dr. Kusum
	Rapporteur	Dr. Dalel Singh	Ms. Shristi Mishra	Mr. Bhupendra Ahirwar
	1:00-2:00pm	LUNCH		
09/02/2025 (Sunday)	10:00-11:00am	**Common Session (Auditorium, RIE)** Invited Talk: Prof. Mukul Bora, Director, Institute of Engineering & Technology, Dibrugarh, Assam		
	11:30-1:00pm	Poster Presentation (Room No.-66)	**Judges** 1. Prof. I.P. Agrawalla 2. Prof. N. C. Ojha 3. Dr. Chakradhar Behera 4. Dr. Manoj Mandal 5. Dr. Mukesh Kumar	
	Chairperson	Prof.(Capt.) Rashmi Singhai		
	Co-chairperson	Dr. Mukesh Kumar		
	Moderator	Dr. Kulveer Singh Chouhan		
	Rapporteur	Dr. Dalel Singh		
	1:00 – 2:00pm	**LUNCH**		
	2:30 – 4:00pm	**Common Session (Auditorium, RIE)** **Valedictory Session :** Chief Guest : Prof. Karunesh Kumar Shukla, Director, MANIT Bhopal		

Technical Session	Date	Time	Chairperson/Co-Chairperson/Judge	Moderator/ Rapporteur	Themes	Paper allotted	Paper Presented	
							Oral Presentation	Poster Presentation
IA	07-02-2025	2:00-5:30 pm	Prof. Chitra Singh Dr. Santosh Kumar	Dr. Ramesh Sethy Ms. Jaya Mrinalini	Theme 3:Interdisciplinary Education and Outreach activities in the light of NEP-2020	**20**	**10**	**6**
IB	07-02-2025		Prof. Suresh Chand Dr. R.P Prajapati	Dr. Manoj Mandal Dr. Rahul Soni	Theme 1 Interdisciplinary Research Methodologies in light of NCFSE-2023 and Theme 2: Sustainable Development and Environmental Science in light of NEP-2020	**14**	**8**	**3**
IC	07-02-2025		Prof. H.K.Garg Dr. Rashmi Sharma	Mr. L S Chouhan Ms. Manisha Pandey	Theme 6 : Data-Driven Decision Making in Education Theme 8: Health and Biomedical Innovations	**6**	**2**	**1**
IIC	08/02/2025	11:30 - 5:00pm	Prof. P.B.Sujit Dr. A.K.Garg	Dr. Manoj Mandal Dr. Dalel Singh	Theme 7: Emerging Technologies and Applications	**22**	**10**	**5**
IIB	08/02/2025	11:30 - 5:00pm	Prof. Kamal Prasad Dr. Chakradhar Behera	Dr. Rajat Kaushik Dr.Ramesh Sethy	Theme 4:Advanced Materials and Nanoscience and Theme 5 Cybersecurity and Privacy in Educational Institutions	**14**	**12**	**1**
IIA	08/02/2025	11:30 - 5:00pm	Prof. V.P. Gupta Dr. Saurabh Kumar	Dr. Kusum Mr. Bhupendra Ahirwar	Theme:9 Indian Knowledge Systems (IKS) and Local Scientific Practices in the light of NEP-2020	**20**	**10**	**3**
Poster Presentation	09/02/2025	11:30 - 1:00pm	Prof.(Capt.) Rashmi Singhai Dr. Mukesh Kumar Prof. I.P. Agrawalla Dr. Chakradhar Behera Dr. Manoj Mandal	Dr. Kulveer Singh Chouhan Dr. Dalel Singh	All poster	**19**		

A three Day National Conference on Recent Advances in Interdisciplinary Science (NCRAIS-2025) was organized by RIE NCERT, Bhopal and coordinated by Dr.Chakradhar Behera, Dr. Santosh Kumar and Mr. L.S Chouhan from 7-9th February,2025. There were six technical sessions for presentation of papers by delegates from over the country, three common sessions as lead talk given by eminent speakers, and two sessions of inaugural and valedictory. The Technical session of each day was based on different themes. Sessions were conducted starting from 10:00 AM to 5:00 PM. The day-wise reports of the inaugural, common, and technical sessions of the national seminar are given below.

INAUGURAL SESSION

DAY 1 (07.02.2025)

Inaugural Session of National Conference on "Recent Advances in Interdisciplinary Science"

In the inaugural session, a warm welcome was extended to Prof. Dinesh Prasad Saklani , Director, NCERT, New Delhi in absentia as Chief Guest, and Prof. Siva Umapathy, JC Bose fellow professor, IISs Bangalore and former Director of IISER Bhopal as Guest of Honour, Prof. Gobardhan Das, Director, IISER, Bhopal and Prof. P.K Chand, former Vice Chancellor of North Orissa University as Special Guest on the dais and Prof. Mukul C.Bora, Director DGUIET, Assam in addition with Prof. Suresh Chand, former Pro Vice chancellor of Lucknow University of the dais along with all heads of the respective Departments of RIE, and participants from across the nation by Prof. Jaidip Mandal, Principal, RIE NCERT Bhopal. The session started with the Gaurav Gaan of RIE Bhopal, followed by the lighting of the lamp and Garlanding Maa Saraswati. Prof. Jaydip Mandal, Principal, delivered a welcome address. He extended his welcome words to all chief guests, committee members of the conference, coordinators, and participants of the conference.

The inaugural session of the National Conference on Recent Advances in Interdisciplinary Science marked the beginning of a collaborative effort to explore innovative strategies, share best practices, and discuss challenges in science education. Held at Regional Institute of Education (NCERT), Bhopal on 7th February 2025, the session brought together educators, researchers, policymakers, and industry professionals to envision the future of science education

and its impact on society. The inaugural session commenced with the lighting of the lamp by Prof. Jaydip Mandal, Principal, RIE Bhopal, Guest of honour and keynote speaker Prof. Siva Umapathy, JC Bose fellow professor, IISs Bangalore and former Director of IISER Bhopal ,Prof. Gobardhan Das, Director of IISER, Bhopal, Prof. P.K Chand, former Vice Chancellor of North Orissa Univeristy as Special Guest, Prof .Chitra Singh, Head, DEE, Head, DESM, Prof. (Capt.) Rashmi Singhai, and Dr. Chakradhar Behera, coordinator of the conference.

Prof. Mandal addressed the gathering with his opening remarks, and Dr Chakradhar Behera briefed on the national conference.

Prof. Gobardhan Das, a renowned expert in science focused on the need of interdisciplinary science for Vikasit Bharat. He stressed that the deliberations of this conference should be included in the upcoming syllabus in interdisciplinary science education for the development of textbooks in line with NCFSE and NEP-2020 as per the mandate of NCERT. He emphasized: The importance of fostering curiosity, critical thinking, and a passion for learning in students. The role of educators in inspiring the next generation of scientists and innovators in the field of interdisciplinary sciences to promotes exploration and discovery via a student-centered approach. Prof. Das delivered a talk on the recent advancements in Interdisciplainary science and its correlation with Indian Knowledge System by correlated ancient science developments in India, from the discovery of the atom by Kanad to modern advancements in astronomy by Prof. A.K. Rai Choudhary. Emphasized the role of teachers in sustainable development through holistic student development. Highlighted India's remarkable achievements in mathematics, medicine, astronomy, and metallurgy. Discussed Nalanda University as an example of India's historical role as a global learning center. Prof. Gobardhan Das, Director of IISER Bhopal and a leading figure in molecular medicine, has consistently emphasized the critical role of interdisciplinary science, ethical research practices, and collaboration in addressing 21st-century challenges. Prof. Das stresses the need for holistic education that transcends traditional academic silos. Integrated Curricula to foster critical thinking. Emphasizing creativity, adaptability, and digital literacy as core 21st-century skills. Prof. Gobardhan Das's vision positions India as a global leader in science by harmonizing traditional wisdom, ethical rigor, and cross-disciplinary innovation. His call for collaboration, holistic education, and art-science synergy offers a blueprint for addressing complex challenge, fostering a generation of socially conscious scientists.

Prof. (Capt.) Rashmi Singhai , Head DESM introduced and read achievement and scientific work done by Prof. Siva Umapathy, a distinguished J.C. Bose Fellow at IISc Bangalore, delivered an insightful inaugural address emphasizing the importance of recent advances in interdisciplinary science. Prof. Umapathy highlighted how interdisciplinary research is pivotal in solving complex global challenges such as climate change, healthcare, and sustainable development. He stressed integrating knowledge from multiple disciplines, such as biology, chemistry, and computer science. He urged institutions to support interdisciplinary collaborations to foster innovation and tackle next-generation problems effectively. Prof. Umapathy discussed the transformative role of AI in modern science. While AI accelerates scientific discovery and problem-solving, he cautioned against its misuse, emphasizing the need for ethical guidelines to prevent biases and misinformation. Its potential to address complex issues positively but also its risks if used irresponsibly. He advocated for a multidisciplinary approach involving biology, physical and chemical science, environmental science, agriculture, data analytics, and engineering to develop innovative agricultural practices that ensure food security, Sustainable future while conserving resources. Prof. Siva Umapathy's address underscored the critical role of interdisciplinary science in shaping the future of research and innovation. By leveraging AI responsibly, addressing sustainability challenges, and fostering ethical practices, he envisions a collaborative scientific ecosystem capable of solving humanity's most pressing problems.

Interactive Session

The inaugural session also featured interactive sessions where participants engaged in discussions and shared their experiences on topics such as: Innovative pedagogical approaches. The role of digital tools in science education. Strategies for promoting STEM education among underrepresented groups.

The inaugural session set the stage for an enriching and insightful dialogue on the future of science education. It emphasized the importance of collaboration and innovation in preparing students for the challenges and opportunities of the 21st century. As the conference progressed, it was expected to generate valuable insights and recommendations for advancing science

education at all levels. The closing of the inaugural session was marked by: Unveiling of the abstract by dignitaries on the stage. Vote of thanks by Prof. Chitra Singhy, Head, DEE.

In the inaugural address held at NINAD auditorium at RIE Bhopal Campus Prof. Jaydip Mandal, Principal RIE, NCERT, Prof. Gobardhan Das, Director IISER, Bhopal, Prof. Siva Umapathy, J. C. Bose Fellow, IISC Bangalore, Prof. P. K. Chand, Former Vice chancellor, North Orissa university, Prof. Mukul Bora, Director, IET, Diburugarh Assam grace the occasion. All participants of NCRAIS-2025 and, RIE Bhopal , teaching faculties and other staffs were present . The inaugural session was reported by Dr. Manoj Mandal & Dr.Mukesh Kumar.

Keynote Address by Professor Siva Umapathy:

Prof. Siva Umapathy expressed his pleasure to return to Bhopal after a few years, particularly for this conference on interdisciplinary science. He always found the commitment to teaching and excellence at R.I.E. Bhopal truly inspiring, both from the faculty and students.

The relevance of this conference cannot be overstated, particularly as we are at the intersection of technology and science. Artificial Intelligence (AI) is no longer just an engineering topic but has evolved into a key driver of scientific discovery across disciplines. AI is transforming chemistry, biology, physics, and even the social sciences, offering unprecedented opportunities for innovation.

Today, AI is being applied in diverse fields: from drug discovery in chemistry to climate change analysis in geology. The boundaries between traditional disciplines are increasingly blurred as scientists and engineers collaborate to tackle complex global challenges.

He stressed that in the next generation, AI will define the job market. It is essential for students and researchers to equip themselves with knowledge in AI applications across their respective domains. However, AI must be used responsibly. As we embrace its capabilities, we must also be mindful of its ethical implications, especially in areas like privacy and misinformation.

India, with its young population, stands at the forefront of this technological revolution. To succeed in this ever-evolving landscape, we must not only be experts in our fields but also adaptable, willing to learn across disciplines, and equipped with the tools to innovate. He delivered a key note talk on “AI and spectroscopy” which is purely relevant with the conference

by citing various research examples of applied physics, chemistry with biology in the drug delivery with various physio-chemical processes happening the biological systems. By the use of AI with the knowledge of spectroscopy various diseases can be eradicated and many problem of the society can be solved.

Finally he expressed his confidence on the participants that this conference serves as a catalyst for your personal and professional growth, encouraging you to pursue interdisciplinary work with passion and dedication. An interactive session was held among the speaker and participants for fruitful deliberation.

Closing Remarks:

Closing remark was given by Prof Suresh Chand, for the enlightening address of Prof. Siva Umapathy. We are honoured by your presence and the insights you shared. I wish all participants an enriching experience during this conference and look forward to seeing the valuable contributions you will make in the sessions ahead.

Glimpse of Inaugural Session

Glimpse of Inaugural Session

Session Reports of National Conference on" Recent Advances in Interdisciplinary Science"

TECHNICAL SESSION-IA (Day 1 on 07-02-2025)

Theme 3: Interdisciplinary Education and Outreach activities in the light of NEP-2020

The technical session IA on theme Interdisciplinary Education and Outreach Activities in the light of NEP-2020 was held at Hall No. 53, Regional Institute of Education (RIE), Bhopal on 7th Feb.2025 from 2.00-5.30 pm. The session was chaired *by* Prof. Chitra Singh, Head, Department of Extension Education, RIE, Bhopal and co-chaired by Dr. Santosh Kumar, Associate Professor, Department of Science and Mathematics Education, RIE, Bhopal. Dr. Ramesh Sethy, Assistant Professor, Department of Science and Mathematics Education, RIE, Bhopal served as the moderator while Dr. Jaya Mrinalini, Assistant Professor (Contractual), Department of Education, RIE, Bhopal served as the rapporteur. First Dr. Sethy welcome the chair and co chair . Dr. Santosh Kumar welcomes Prof. Chitra Singh by a sapling. Prof. Singh delivered a lead talk on Interdisciplinary Education and Outreach activities in the light of NEP-2020 by citing its need and justification of the current times. She stressed on the Interdisciplinary education under NEP-2020 is a transformative approach that encourages flexibility, inclusivity, and innovation in learning. Outreach activities play a vital role in ensuring its successful implementation, bridging the gap between academia, research, and society. By embracing collaborative and experiential learning, India's education system can prepare students for a future driven by knowledge integration and societal impact. She then welcomes all participants for their presentation.

Panelists/Speakers:

Nikita Rajput, Department of Education, Central University of Rajasthan. Topic presented: Collaborative Learning: An Innovative Practice Fostering Inclusiveness in the STEM Field. This presentation highlighted the role of collaborative learning in making STEM education more inclusive. It emphasized how teamwork and problem-solving approaches can enhance student participation, particularly among underrepresented groups, thereby improving attitudes towards STEM careers. A concern was raised regarding the choice of images used in the presentation,

which depicted students from Western countries. Given the focus on the benefits of collaborative learning for children from rural India, it was suggested that visuals representing this demographic would have been more appropriate.

Jaisleen Kaur Sondhi, School of Education, CHRIST (Deemed to be University), Hosur Road Topic presented: Exploring the Role of Arts Integration in Fostering Creativity and Innovation in Stem Education with Insights from Multiple Intelligences and Learning Theories. This session explored the integration of arts within STEM education to foster creativity and innovation. Using multiple intelligence theories and learning theories, it proposed a holistic STEAM model to enhance cognitive and emotional engagement, preparing students for complex challenges. Suggestion given on expanding the discussion beyond Atal Tinkering Labs (ATL) to explore additional approaches for integrating arts into STEM education. A suggestion was made to incorporate all nine aspects of Gardner's Multiple Intelligences Theory rather than focusing on a limited set. Bruner's Theory of Cognitive Development was proposed as an additional theoretical framework to strengthen the argument for arts integration in STEM.

Sonal Rawat, Bluebells School International, Kailash Colony, New Delhi, Topic presented: Interdisciplinary Approach to STEM Education for Middle and Secondary School Students. Interdisciplinary Approach to STEM for Middle and Secondary Students Focusing on Indian schools, this study assessed interdisciplinary STEM education and its impact on students' subject choices and future career paths. It introduced the "Integrated Innovation Curriculum" to promote inquiry, critical thinking, and real-world problem-solving. A question was raised about the role of mentors in interdisciplinary STEM education and how mentorship can enhance student engagement and learning outcomes. Concerns were expressed about the higher rate of disagreement among senior-grade students regarding interdisciplinary approaches. It was suggested that further studies be conducted to examine this trend and provide empirical backing for the findings.

Debanjali Ghosh, Department of Education, Central University of Jharkhand, Ranchi. Topic presented: Developing Instructional strategies for improving students' Mathematical Problem-Solving Skills through STEM learning. Instructional Strategies for Enhancing Mathematical Problem-Solving**.** This presentation examined a six-step STEM-based mathematical problem-solving model, particularly in coordinate geometry. It demonstrated how students could improve

mathematical skills by applying real-life scenarios, visualization techniques, and route-mapping strategies. The absence of data to support key findings was noted, with a recommendation to include quantitative and qualitative evidence in future research. A specific query was raised regarding the application of the Coordinate Color Technique, prompting a need for further clarification and examples.

Ganga Mahto, DESSH, Regional Institute of Education, NCERT, Bhopal. Topic presented: *Theme Teaching and Team Teaching as a Pedagogy of STEAM Education in Indian Schools*. Theme Teaching and Team Teaching in STEAM Education. This session explored innovative pedagogies like Theme Teaching and Team Teaching to integrate STEAM disciplines in Indian schools. It analyzed their effectiveness in fostering interdisciplinary learning, creativity, and 21st-century skills development. A discussion emerged on the sequencing of Theme Teaching and Team Teaching, with differing perspectives on whether the theme should be established first or if team collaboration should guide the thematic approach.It was suggested that a structured module on team-based teaching be developed, along with enhanced teacher training programs to improve implementation.

Sehar Nigar, Jamia Millia Islamia, New Delhi, Topic Presented: Leveraging Virtual Laboratories for Sustainable Development in Science Education: A Review. Virtual laboratories for Sustainable Science Education**.** The study reviewed virtual laboratories as tools for sustainable development in science education. It highlighted their benefits in reducing environmental impact, democratizing education, and supporting Sustainable Development Goals (SDGs) like quality education and climate action. A key question was posed regarding future recommendations that could be derived from the research findings, emphasizing the need for long-term strategies to enhance the adoption and effectiveness of virtual laboratories.

G. Selvakumar, Govt High School Oppathavadibargur Block, Krishnagiri District, Tamil Nadu, Topic Presented*: Innovative Teaching Methods for STEM Education and TLM for Interdisciplinary Approaches.* Innovative Teaching Methods for STEM & Teaching-Learning Materials(TLMs). This presentation focused on innovative tools and methods such as PowerPoint animations, Geogebra, and Desmos software to enhance conceptual understanding in STEM. It aligned with NEP 2020's vision of fostering critical, lateral, and numerical thinking for

21st-century education. It was proposed that reviewing and refining content uploaded in video format could enhance the relevance and impact of the research, making it more accessible and engaging for educators and students alike.

Monica Choudhary, Department of Teacher Education, Central University of Haryana (CUH) presented on the topic "Creative thinking and innovation: importance of skill based education in India in NEP 2020". On her presentation she examines the significance of integrating creative thinking and innovation into skill-based education outlining the various strategies proposed by NEP 2020. She also reviews the existing policies, practices and the importance of skill-based education in India esp. for women. As suggested by NEP-2020 setting up of Gender Inclusion Fund (GIF) to provide quality education for girls as well as transgender students by building hostels and toilet facilities. Her presentation revealed that even though several schemes and efforts have been made in the field of skill education for women by both Centre and State government, it is still not at a satisfactory level. With increase in exposure to vocational education, skill capacity and competency gets developed which she addressed in her presentation.

Saurabh Mishra, Trans Stadia University, Ahmedabad, Gujarat presented on the topic "Integrating STEAM Education into Physical Education: A Theoretical Framework**".** On his presentation he focused on the effects of particular STEAM activities in physical education, like dance-mathematics integration, sports equipment design challenges, and fitness technology integration, has shifted to controlled experiments and comparative studies. Results point to the fact that these activities support critical thinking abilities, artistic expression, and academic success. Practical applications of STEAM integration include the formation of complete STEAM-curriculum guidelines, technological integration platforms, cross-curricular cooperation models, community involvement programs, professional learning networks, and research-practice collaborations. Incorporating STEAM into physical education has enormous potential to change the face of education and provide students with a comprehensive and interesting learning experience which will became pivotal for holistic development.

Summary of Presentations

The conference featured nine participants presenting on various innovative approaches in STEM and STEAM education.

Session's Key Takeaways

The key takeaways of the session were:

- ✓ Inclusivity in STEM through Collaborative Learning.
- ✓ Expanding the Scope of Arts Integration in STEM (STEAM).
- ✓ Challenges and Opportunities in Interdisciplinary STEM Education.
- ✓ Enhancing Mathematical Problem-Solving through Real-World Applications.
- ✓ Leveraging Virtual Laboratories for Sustainable Science Education.
- ✓ Innovative Teaching Strategies and Use of Technology in STEM Education

The session concluded with Co-Chairperson, Dr. Santosh Kumar commending the participants and summarizing key insights and recommendations from each presentation. The Chairperson, Prof. Chitra Singh, further emphasized the importance of preparing teachers to nurture creativity and interdisciplinary learning. Finally Prof. Singh was felicitated with a memento by Dr. Chakradhar Behera, Coordinator of the progamme and Dr.Santosh Kumr was felicitated by Dr. Ramesh Sethy.

Technical Session-IC

The technical session IC on theme 6: Data Driven Decision Making in Education and Theme8: Health and Biomedical Innovation on 7th Feb, 2025 at 2.30 PM in the Learning Resource Center, RIE Bhopal. This session was chaired by Prof. H.K Garg, Professor, IEHE Bhopal and co chaired by Dr.Rashmi Sharma, Associate Professor, RIE, Bhopal. Mr. L.S Chauhan, Assistant Professor of DESM, RIE Bhopal served as Moderator where Ms. Manisha Pande, Assistant Professor(contractual), DESM served as rapporteur. The penalist of the session are Mr. Alok Kumar Padhan, Research Scholar, Department of Education, Central University of Rajasthan presented on: "Neuroscience and Education: Utilizing Neuroscientific Insights to Foster Effective Learning". Dr. Rashmi Sharma, Associate Professor, RIE Bhopal presented on "School based Initiatives for promotion of Sustainable Practices: An analysis".

The Summary of Presentations:

The session began at 2.45 pm with the arrival of the dignitaries- Chairperson Prof. H.K Garg, co-chairperson Dr. Rashmi Sharma and Moderator Dr. L.S Chauhan. This was followed by welcome of the chairperson by co-chairperson with a sapling. The lead talk on “Health and Biomedical Innovation” was delivered by Prof. H.K Garg. He stressed on the horizon of health and biomedical innovation is both exciting and transformative. As these technologies continue to evolve, they hold the potential to revolutionize patient care, making it more personalized, efficient, and accessible. It is imperative for healthcare professionals, researchers, and policymakers to collaborate and embrace these innovations to address current challenges and improve health outcomes globally. He also stressed that as we stand on the cusp of unprecedented advancements, these innovations are not only enhancing patient care but also redefining the very fabric of healthcare delivery. For the sake of example Artificial Intelligence has emerged as a cornerstone in modern medicine. Its applications range from predictive analytics to personalized treatment plans. For instance, AI algorithms can analyze vast datasets to predict disease outbreaks, optimize hospital workflows, and even assist in complex surgical procedures. The integration of AI is leading to more accurate diagnoses and efficient patient management. Similarly moving beyond the traditional one-size-fits-all approach, hyper-personalized medicine tailors treatments based on an individual's genetic makeup, lifestyle, and environment. This precision medicine approach ensures therapies are more effective and reduces adverse effects, marking a significant shift towards individualized patient care. The evolution of medical devices has been remarkable. Innovations such as digital tags for medical equipment enhance tracking and safety, while advanced suturing techniques improve surgical outcomes. These developments contribute to more efficient and safer medical procedures, benefiting both patients and healthcare providers. Biomedical engineers are at the forefront of creating artificial organs, developing wearable health sensors, and enhancing prosthetic devices. These innovations not only improve the quality of life for patients but also address critical shortages in organ donations and provide real-time health monitoring solutions. Technologies like CRISPR and advancements in stem cell research are revolutionizing our approach to genetic disorders and regenerative medicine. These tools offer the potential to correct genetic anomalies and develop therapies that can regenerate damaged tissues, paving the way for treatments that were once thought impossible. The pharmaceutical landscape is witnessing groundbreaking developments. For example, researchers are exploring plant-based methods to produce essential medications,

potentially allowing individuals to cultivate their treatments at home. This approach could democratize access to vital drugs, especially in underserved regions. Finally he concluded that innovations are also targeting global health issues. For instance, new stem cell and AI technologies are being developed to treat congenital heart defects in infants, aiming to cure these conditions even before birth. Such advancements hold the promise of reducing infant mortality and improving long-term health outcomes. Along with that the integration of data analytics and interconnected devices is transforming healthcare delivery. Wearable health sensors provide continuous monitoring, allowing for early detection of potential health issues and enabling proactive interventions. This data-driven approach facilitates personalized care and empowers patients to take charge of their health.

Later the theme of the session was announced by the chairperson and he welcome the participants for presentation and deliberation

Session 1:

The first presentation was by Mr. Alok Kumar Padhan, Research Scholar, Department of Education, Central University of Rajasthan on the topic: “Neuroscience and Education: Utilizing Neuroscientific Insights to Foster Effective Learning”.

He presented a review paper starting with the introduction of neuroscience and its relevance in education, neuroplasticity and lifelong learning. He also discussed about the neuroscience of memory retention by involvement of cerebral cortex, hippocampus and amygdala. He also highlighted the strategies to enhance memory retention which included attention, physical exercise, rehearsal and reward mechanism. He also discussed certain challenges and considerations in implementing neuroscience in learning. He concluded the presentation by sharing his views on integrating neuroscience in education in overall learning and development of the students.

After completion of the presentation the chairperson asked some questions regarding the application of the concept of neuroscience in heterogenous classroom environment in school. He also asked Mr. Alok how can he make use of neural network to substantiate his research work to which Mr. Alok answered with the concept of Brain Beast learning.

Session 2:

The next session began with the presentation of Dr. Rashmi Sharma from RIE NCERT Bhopal on the topic "School based Initiatives for promotion of Sustainable Practices: An analysis". She in her paper described the practices that are undertaken by various schools for sustainable development. Her research paper mainly focused on schools of MP namely PM Shri and CM Rise Schools. The main objective of the paper was to explore the best practices in school areas. Her methodology was by using research tool which was a self-prepared questionnaire. The main findings of her paper showed that 66% schools have taken formal initiatives to promote sustainable development which included waste management, sustainable gardening, biodiversity conservation, eco friendly transportation, water conservation, energy conservation and tree plantation among other methods. She also highlighted that teacher related practices for sustainable development are only 6.66% that are claimed by schools. Most student related practices only include visits or seminars or making of eco clubs. She also presented that those

good practices include cleanliness drive, green campus, minimum use of plastic in school canteen etc. 60% of the teachers accepted that they take care of this aspect in their curriculum. She also highlighted the lack of awareness among students and lack of teacher training as the reason for insufficient implementation of sustainable development processes.

After the completion of the presentation, there was an interaction with the Chairperson in which he highlighted the use of technology as a pedagogical tool.

The program culminated by honoring the respected chairperson by Principal Prof. Jaydip Mandal in presence of Co-chairperson and Coordinator of the program.

Technical Session- IB

The technical Session- IB on the theme-1 Interdisciplinary research methodologies in the light of NCFSE - 2023 and theme 2. Sustainable development and Environmental Science in the light of NEP- 2020 was held at Hall No. 30, RIE Bhopal on 7th Feb. from 2.00 pm to 5.30 pm. This session was chaired by Prof. Suresh Chand, former dean of DAV, Indore and co chaired by Dr. R.P Prajapati, Associate Professor RIE, Bhopal. Dr. Manoj Mandal, Assistant Professor, RIE Bhopal was served as moderator while Dr. Rahul Soni, Assistant Professor (Contractual) RIE Bhopal was served as rapporteurs

Summary of Presentations

The session began at 2.45 pm with the arrival of the dignitaries- Chairperson Prof. Suresh Chand, Co- chairperson Dr. R.P Prajapati, and Moderator Dr. Manoj Mandal. This was followed by welcome of the Chairperson by Co- chairperson with a sapling. Later the theme of the session was announced by Dr.Manoj Mandal. The session started with contextual clarity and followed by a lead talk by Prof. Suresh Chand on Interdisciplinary Research Methodologies in the light of NCFSE-2023. Interdisciplinary research methodologies are critical in addressing complex real-world problems that do not fit neatly within the boundaries of a single discipline. NCFSE-2023 emphasizes an integrated approach to knowledge, breaking away from rigid subject silos to create holistic, applied, and skill-driven education. The framework encourages a cross-disciplinary perspective, wherein science, mathematics, social sciences, arts, and vocational subjects interact to promote deep understanding and real-life problem-solving. This is

particularly significant for: STEM and Humanities Integration which encourages connections between scientific research, ethical considerations, and cultural perspectives. Project-Based Learning which promotes inquiry-driven learning experiences where students engage in hands-on projects drawing from multiple disciplines. Technology and Traditional Knowledge Systems merges the modern technological advancements with indigenous knowledge to create sustainable solutions.

The key research methodologies in an interdisciplinary framework combining qualitative and quantitative research techniques to gain a comprehensive understanding of problems. Examining complex problems by analyzing interactions between different components rather than isolated factors. Engaging communities, stakeholders, and experts from various fields to co-create knowledge and implement solutions. Utilizing AI, big data, and modeling techniques to enhance interdisciplinary studies in education, environment, and policy-making. As NCFSE paves the way for a more connected, collaborative, and comprehensive education system that nurtures interdisciplinary research. By embracing integrated learning models**,** we can create a knowledge ecosystem that is adaptive, inclusive, and future-ready. After the lead talk the chairman welcomed all participants for presentation.

Panelists/Speakers:

K. Srinivas Naik from Centre for Plant Molecular Biology, Osmania University presented the paper on the Estimation of Heritability, Genetic Advance and Correlation for Quantitative Traits in Chickpeas (Cicerarietinum L.) Under Induced EMS Mutagenesis. Here he presented the data based on the evidence of the experimental findings with two varieties of chickpea-IC265291 (V1) and IC265298 (V2) which were obtained from NBPGR, New Delhi to study the Heritability, correlation and Genetic advance as percent of the mean for 11 quantitative characters. Healthy & Uniform seeds of two varieties of chickpea were treated with different concentrations of chemical mutagen EMS (Ethyl Methyl Sulfonate). The EMS-treated seeds along with the control (untreated) seeds were sown in the field at CPMB (Centre for Plant Molecular Biology), Osmania University, Hyderabad to study yield parameters in M1, M2 and M3 generations. As a result of the study, it is revealed that all the characters under study were shown significant phenotypic and genotypic correlations are the most important traits which can be utilized for the improvement of seed yield in chickpea.

Swagat Kumar Purohit, Regional Institute of Education, Mysore presented on "A warm strategy to enhance activities and learning outcomes of students in physics education program through e-PBL" method to solve the problems of math's and physics. He used the principles of Thiagarajan for developing learning devices to develop TLMs for physics. He also shared his views on physics and education. He in his presentation shared the comparison between e-PBL method and PBL method and stated that e-PBL methods are better. He emphasized on team work, self-directed learning and communication skills. The Chairperson asked him about his contribution in developing the technical aspects of e-PBL method.He also suggested to include statistical data related to the method in the presentation. He was advised to revise his paper and was not recommended.

Mr. Narpat Pal Singh Khichi, Research Scholar, RIE Bhopal presented on "Combined effect of cytokinins and auxin on shoot regeneration of *Thunbergiaalata"*. He presented on the micropropagation technique of tissue culture and the effect of certain plant growth regulators – cytokinin and auxin on plant *Thunbergiaalata.* He used different concentrations of the two hormones in controlled medium to see their effects in the plant. He depicted his results showing tabulated values and photographs of the experiment conducted by him.The Chairperson asked him questions related to his research work and also suggested him some improvements in his experimental procedures. He was advised to focus on his data collection and hence was not recommended

S.V. Vijayalakmi Shankar, DIET, Uthamacholapuram, Salem-10 Tamilnadu, presented paper on Inter disciplinary project-based learning: a pathway to achieving enhanced learning outcomes under NCFSE 2023. This study explores the efficacy of Interdisciplinary Project-Based Learning (IDPBL) in improving learning outcomes in middle school Mathematics and Science. Quantitative analysis revealed significant improvements in learning outcomes, particularly in teachers' ability to connect concepts across disciplines. Qualitative insights highlighted enhanced student engagement, creativity, and collaborative skills. Key findings showed significant differences in outcomes based on gender but not on educational qualifications or subject specialization. The study demonstrates that IDPBL fosters a holistic understanding of STEM concepts while addressing gaps in traditional pedagogy. The findings offer actionable

recommendations for integrating interdisciplinary methods into school curricula, contributing to NCFSE 2023's objectives of bridging subject silos and enhancing conceptual understanding.

Mr. Anil Kumar M, presented on "Women Empowerment: a Global perspective on SDG-5" He started his presentation by sharing some information on women empowerment and problems faced by women at their workplace. He also talked about gender inequality and its relevance to Sustainable Development Goal: 6. Later on, the presentation could not proceed further due to technical issues.

Dr. M. Pratibha, presented on "Plastic waste management-Some possible implications for the new millennium" . The paper depicted a case study which showed plastic waste collection data. Her research methodology included preparation of a questionnaire for data collection. Her questions focused on means of recycling plastic wastes in her area of study. The Chairperson asked her about the relevance of dates in data collection. He also asked her about the missing data of year 2024.The Chairperson suggested her to inculcate the data of the last year and collection of data in an year wise manner so that it can be easily compared and a trend can be established showing correlation between the enlisted values.She was advised to revise her data collection and to add more data in a sequential manner and hence it was not recommended.

Dr. Mukesh Kumar, RIE Bhopal, presented on "*In-silco*, *In-vivo* and *In-vitro:*a multidisciplinary studies of gonadotropin releasing hormone and its analogues with GnRH-R1 receptor in *Clariasmagur".* His paper showed research work done by him on reproductive biology of *Clariasmagur.* He showed data taken PCR technology, gene cloning, HPCR and histopathological analysis of processes related to his model organism. He also showed graphs related to Ramachandran plots.

He was asked about the methodology used by him for his experimental work to which he replied with methods of gene sequencing. He also shared his plans about patenting his research work.

After each presentation, chairperson, the organizing committee and the audience raised their questions. Each responded to the questions based on their results. Thus the discussion led towards scientific newness which is fruitful.

Session Outcome:

The whole session was very productive and informative. The meaningful insights from the Chairperson made the session more interesting. During the culmination of the program memento was presented by the Coordinator of the program Dr. Chakradhar Behera to the respected Chairperson.

Cultural Event on 7th Feb.2025 at the RIE, Auditorium

As we know that the cultural evening/ cultural programs provide a relaxed and informal setting for participants to interact, fostering stronger professional and personal connections. Beside this it offers a platform to highlight regional traditions, music, dance, and art, enriching the conference experience. As long technical discussions can be mentally exhausting so a cultural



event refreshes participants and re-energizes them for the next sessions. Hence a cultural event was organized under the guidance of cultural convener Dr.Sivalika Sarkar, Assistant Professor of RIE Bhopal. Which was grand success due to the energetic performance of our students.

Session Reports on 08/02/2025 (Day 2)

The common session held at NINAD Auditorium, PSSCIVE, Bhopal. This session comprises of two key note addresses by Prof. P.K Chand, Former Vice Chancellor of North Odisha University and Prof Kamal Prasad, former Proctor of Aryabhatta Knowledge University and Professor of T.M Bhagalpur University, Bihar. Prof. Chand delivered a talk on " Plant Biotechnology to address Sustainable Development Goal 3: Good health and Well Being". In his talk he presented plant biotechnology and its interdisciplinary nature how could be used for sustainable development as per the requirement of the conference. Beside this he also emphasized on the work on medicinal plants on special reference to Ocimum species along with the long lasting our traditional Ayurveda in relevance with the modern medical science . In the talk he stressed plant biotechnology enables the development of crops with improved nutritional profiles, addressing malnutrition and related health issues. For instance, biofortified crops rich in essential vitamins and minerals can combat deficiencies prevalent in many developing regions, thereby improving overall health and reducing disease susceptibility. Innovations in plant biotechnology have led to the development of plant-based systems for producing therapeutic compounds. A notable example is the project "Phytogene," where researchers utilize the Nicotiana benthamiana plant to produce GLP-1 receptor agonists, compounds used in diabetes and weight-loss medications like Ozempic. This approach offers a sustainable and cost-effective alternative to traditional pharmaceutical manufacturing, potentially increasing accessibility to essential medications. Through genetic engineering, plants can be modified to produce higher yields of medicinal compounds. This advancement ensures a stable and sustainable supply of plant-derived medicines, reducing reliance on synthetic drugs and promoting holistic health practices. Genetically modified crops with built-in pest resistance reduce the need for chemical pesticides, leading to safer food products and a healthier environment. For example, the cultivation of Bt brinjal (eggplant) in Bangladesh has resulted in a 39% reduction in pesticide use and a 43%

increase in yield, contributing to both environmental sustainability and improved farmer livelihoods. Recent breakthroughs in plant biotechnology have led to the development of crops that form enhanced partnerships with soil microbes, improving nutrient uptake. For instance, scientists in the UK discovered a mutation in the legume Medicago truncatula that enhances symbiosis with beneficial bacteria and fungi, aiding nutrient absorption. Applying this knowledge to crops like wheat could reduce the need for artificial fertilizers, leading to more sustainable agricultural practices and healthier ecosystems. By engineering plants to produce specific therapeutic compounds, plant biotechnology offers innovative approaches to managing non-communicable diseases. For example, plants can be bioengineered to produce molecules that aid in weight management or regulate blood sugar levels, providing alternative treatments for conditions like obesity and diabetes. In conclusionhe concluded that plant biotechnology stands as a cornerstone in the pursuit of SDG 3, offering sustainable solutions to enhance health and well-being globally. By improving nutritional content, enabling sustainable production of pharmaceuticals, reducing environmental toxins, and promoting sustainable agricultural practices, plant biotechnology paves the way for a healthier future.

Prof. Kamal Prasad, T.M. Bhagalpur University, Former Proctor, Aryabhatta Knowledge University delivered a keynote talk on Nanotechnology and its Applications under the session theme Understanding nanotechnology and its applications.

In the presentation he covered the aspects of What is nanoscale? Structure, device and system in nano scale. Nanotechnology in nature. Benefits of nanotechnology: today and tomorrow. Different methods for nanopartical synthesis. Drug assisted nanoparticle.

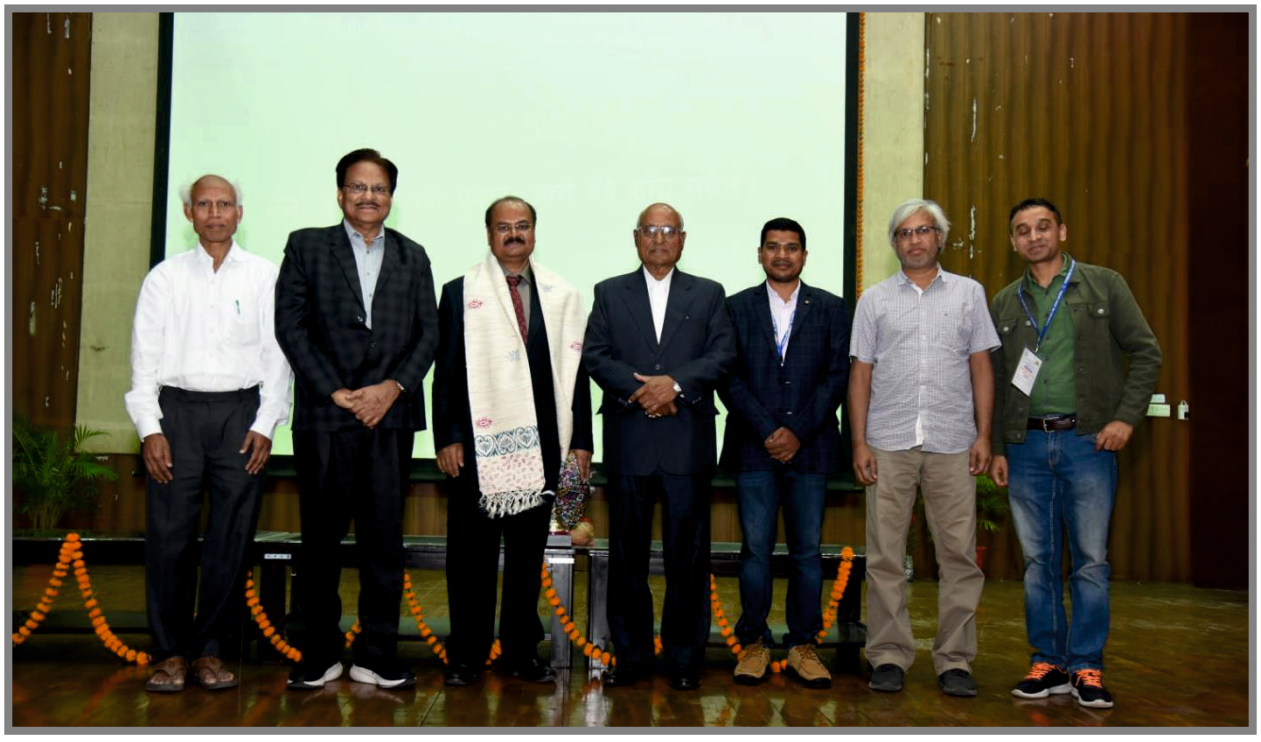
Nanotechnology uses in cosmetics, paints for buildings, antiaging creams, CAD, Space transportation, nanofabrications were the keypoints discussed in this presentation: In the presentation the relevant case studies ,examples, or research findings presented are lotus effect-scan by electron microscope, Butterfly wings. Gecko adhesion system. In the presentation he also covered the critical aspects of plant nanotechnology citing the naturally occurring examples like nanoparticle generation from leaves of Bilva .The key takeaways of this presentation is "Nano ki bas yahipukar, age badhesara sansar" and hence it can be concluded Nanotechnology is multidisciplinary, all are interconnected, and it's just a play of energy**.** Nanotechnology must be undertaken as a new technology for the future era, even if it has been used since ancient times, but it must be beneficial in all its ways for humans and their economic growth.

Session Outcome:

- Nanotechnology is everywhere, it's naturally occurring from long back, nature (plants, animals etc.).
- Nanoparticles are cracks of manpower development for a clean and green environment.
- Nanotechnology applications will generate economic and sustainable benefits for humans in this new era of technology.

At the end of this session Prof. Prasad was honored with our tradition by the Prof. Jaidip Mandal, Principal RIE Bhopal along other dignitaries of the dias.


Cosmetics
Sunscreen
nano Zinc Oxide
Large ZnO particles
Block UV light
Scatter visible light
Appear white
wavelength of visible light that they don't scatter it
Appear clear



TECHNICAL SESSION-IIA

The technical session on II A on the theme-9 Indian Knowledge Systems (IKS) and Local Scientific Practices in the light of NEP-2020 was held at Learning Resource Center, RIE Bhopal on 8th Feb.8 2025 from 2:30 PM - 5:25 PM. The session was chaired by Prof. V P Gupta, former professor of Chemistry, RIE Bhopal and co chaired by Dr Saurabh Kumar, Associate Professor, RIE Bhopal. Dr. Kusum, Assistant Professor DESM was served as the moderator while Mr. Bhupendra Ahirwar, Assistant Professor(contractual) DESM was served as the rapporteur.

Session Report

The session began at 2.15 pm with the arrival of the dignitaries- Chairperson Prof. V P Gupta,Co-chair Dr Saurabh Kumar and Moderator Dr. Kusum. The session was started with welcome note of the chairperson by the moderator and welcome him by offering a sapling as a custom and tradition of RIE,Bhopal. He delivered a lead talk on Indian Knowledge Systems (IKS) and Local Scientific Practices in the light of NEP-2020. He stressed on the cultural heritage of India with the rootedness in Indian knowledge system in each and every field of the modern science and technology which need to be contextualize as per the recommendation of the NEP-2020. The Indian Knowledge System encompasses the rich tapestry of India's intellectual heritage, including disciplines like Ayurveda**,** Yoga, Mathematics, Astronomy, Philosophy, Arts, and Literature**.** Rooted in centuries of observation, experimentation, and reflection, IKS offers profound insights into various aspects of life and the universe. He stressed that this can be feasible if it will have the collective efforts across the all section of the society to make India as Vikasit Bharat as well as a driving system for knowledge economy. Finally he welcomed all the participants for presentation. The session is listed as follows. Session 1 (2:30 - 2:40 PM) by Dipali K. Soni, KPPGU Vadodara, presented paper on Role of Indigenous Knowledge in Promoting STEM Education in Rural India. During the discussion it was asked how to calculate temperature without a thermometer? Next session 2 (2:40 - 2:55 PM) by Pradeep K. Sharma, University of Allahabad Presented paper on Cultural Contextualization through Gandhi's Basic Education Ideas in the Light of NEP-2020, Promoting

Scientific Outlook in Indian Society. The Key Takeaways from this presentation is IKS in Nai Taleem It was recommendations to increase population size.

The session 3 (2:55 - 3:05 PM) by Vaishali Garg, RIE Ajmer Presented paper on Integrating Traditional Ecological Knowledge into Science Curriculum.The Key Takeaways from this presentation is Snake and Ladder games. It was recommendations to Add local games of Haryana.

Session 4 (3:05 - 3:30 PM) by Apramita Chand, IIT Kharagpur presented paper on Addressing Framework Development Needs for a Standardized Indian Knowledge System Resource for Interdisciplinary School Science Pedagogy. During the discussion it was asked on the activeness of Department of Education in IIT Kharagpur and its function on IKS. The chairman strongly recommended increasing dataset .

Session 5 (3:30 - 3:50 PM) by Ajay Kumar (Author: T Sangeeta), CU RajasthanPresented paper on Indigenous Games as Educational Tools Enhancing Skills for Students with Specific Learning Disabilities.

Session 6 (3:50 - 3:58 PM) by Deeksha Chourasiya, PSSCIVE RIE Bhopal Presented paper on Empowering Future Managers: The Integration of Indian Knowledge Systems in Vocational Education. It was recommended to revise the content.

Session 7 (3:58 - 4:12 PM) by Anshul Saluja, KRMU Gurugram Presented paper on Cultural Roots, Scientific Wings: Nurturing Evidence-Based Thought in Indian Society During the discussion it was asked How to validate local market Ayurveda products?

Session 8 (4:12 - 4:35 PM) by Vigender Singh, IGUM Rewari Haryana Presented paper on The Role of Indian Culture in Shaping Scientific Inquiry: An Interdisciplinary Approach. The Key Takeaways from this presentation is Interdisciplinary approach not justified and hence recommended as a General article.

Session 9 (4:35 - 4:55 PM) by Tariq Khan (Author: Mehmood Ahmed), JMI Delhi presented paper on Fostering Scientific Temperament in Indian Society: A Vision Inspired by NEP-2020. During the session it was asked regarding how dataset collected. The Key Takeaways from this

presentation is forecasting scientific temperament and it was recommendations to increase dataset

Session 10 (4:55 - 5:10 PM) by Anil Kumar, CU Rajasthan Presented paper on Ethnomathematics as a Tool for Promoting Scientific Thinking in Indian Cultural Contexts During the session it was asked regarding Ethnomathematics. This presentation recommended and appreciated by Chairperson.

Session 11 (5:10 - 5:25 PM) Sanjana Kashyap presented paper on Reimagining Interdisciplinary Learning: Innovative Approaches in Education. During the session it was asked regarding IKS Integration in STEM. The Key Takeaways from this presentation is Fractals and geometric patterns in sewing.

Session Outcome:

- The session successfully highlighted the relevance of Indian Knowledge Systems in contemporary education.
- Key discussions revolved around integrating traditional knowledge with STEM education and fostering a scientific mindset.
- Various recommendations were made regarding expanding datasets, revising content, and incorporating local games into the curriculum.
- The session emphasized the role of indigenous knowledge and cultural traditions in modern scientific education.

Technical session-IIB

The technical session-IIB on Theme 4: Advanced Materials and Nanoscience and Theme 5: Cyber security and Privacy in Educational Institution held at Hall No 30, RIE Bhopal on 8th Feb,2025 from 2-30 PM to 5:30 PM. The session was chaired by Prof. Kamal Prasad, Bhagalpur University and co chaired by Dr Chakradhar Behera, RIE Bhopal. Dr. Rajat Kausik, Assistant Professor of RIE Bhopal served as the moderator while Dr Ramesh Sethy, Assistant Professor, DESM rapporteurs.

Summary of Presentations:

The session began at 2.45 pm with the arrival of the dignitaries- Chairperson Prof. Kamal Prasad, Co-chair Dr Chakradhar Behera and Moderator Dr. Rajat Kausik. The session was started with welcome note of the chairperson. Then a lead talk was delivered by Prof .Kamal Prasad on Advanced Materials and Nanoscience. He stressed that Advanced materials and nanoscience are at the forefront of technological evolution, offering solutions to some of the most pressing challenges of our time. As we continue to explore and manipulate matter at the nanoscale, we unlock possibilities that were once the realm of science fiction, paving the way for a future where technology seamlessly integrates with and enhances the human experience. Advanced materials refer to substances engineered to exhibit superior properties, including enhanced strength, lighter weight, and improved functionality. Nanoscience delves into the manipulation of matter at the nanometer scale (one billionth of a meter), where unique quantum and surface

phenomena emerge, leading to novel material characteristics. He cited some recent examples such as Aerogels, often termed "frozen smoke" due to their translucent appearance, are a class of porous, solid materials with exceptional properties. Their applications span energy storage, water purification, and catalysis, owing to their high surface area and low density. Materials like graphene and carbon nanotubes have revolutionized electronics by enabling the development of flexible and transparent devices. Their exceptional electrical conductivity and mechanical strength make them ideal for next-generation electronic components. Innovative approaches have utilized DNA molecules as both a blueprint and a tool for constructing advanced materials. This strategy has led to significant advancements in assembling polyhedral nanoparticles, expanding possibilities in metamaterial design, which are essential for technologies like invisibility cloaks and ultrafast optical computing systems. he development of nanoparticle copper suspensions offers a safer and more reliable alternative to traditional lead-based solders in electronics manufacturing. This advancement not only reduces environmental hazards but also enhances the performance and durability of electronic devices. Chinese scientists have developed a groundbreaking camouflage material capable of adapting its molecular composition to blend seamlessly into its background, potentially rendering the wearer invisible to the naked eye. This innovation utilizes self-adaptive photochromism (SAP), where molecules rearrange and change color upon exposure to specific light wavelengths, mimicking the natural cloaking abilities of animals like chameleons and cephalopods. The miniaturization of transistors and memory chips through nanotechnology has exponentially increased computing power and storage capacity, leading to more efficient and compact electronic devices. Nanoparticles are being engineered for targeted drug delivery systems, allowing for precise treatment of diseases with minimal side effects. Additionally, nanomaterials are enhancing imaging techniques, leading to earlier and more accurate diagnoses. Nanomaterials are pivotal in developing more efficient energy storage systems, such as batteries and supercapacitors, and in improving the efficiency of renewable energy technologies like solar cells. The convergence of advanced materials and nanoscience holds immense potential for future innovations such as Creating materials that are both high-performing and environmentally friendly, contributing to sustainable industrial practices. Utilizing nanomaterials to develop qubits, the fundamental units of quantum computers, which could revolutionize data processing and encryption. Developing nanoscale sensors capable of

detecting diseases at their very onset, enabling preventive healthcare measures.after his deliberation he welcomed all the participants for presentation.

Sandra Dias, from Materials Research Centre, Indian Institute of Science, Bangalore 560012, Karnataka, India presented paper on Cu_2SnS_3/ZnS Core Shell Quantum Dots for White Light Emitting Diode Applications which was achieved by combining the blue emission of ZnS and the red emission of Cu_2SnS_3 in a single quantum dot hence producing white light emission. The chairman of the session suggested adding the context with spcial reference to developing context for undergraduate students to have fundamental idea of LED in their curriculum. Next presentation was by D. L. Chaudhari from Shivprasad Sadanand Jaiswal College, Arjuni /Mor. Dist-Gondia, Maharashtra, India presented paper on **Synthesis** and high-frequency dielectric behaviour of Gd substituted Ni–Zn spinel ferrites delves into the synthesis and exploration of the dielectric characteristics of Gd-doped NiZn Spinel Ferrites, a class of magnetic materials that have shown promise in a variety of applications based on experimental finding. On the basis of these results an explanation for the dielectric mechanism in Ni–Gd–Zn ferrites is suggested. The chairman of the session suggested to add the application part for the understanding of the allied phenomena. Next presentation was by Miss Monica Churasia on the topic "Challenges and Opportunity in Curriculum Design for Advanced materials education in Schools where she emphasized on the incorporation of material education into school curricula to address the future challenges. Her research gave insight on the technique for creating and successful curriculum by utilizing technological resources for increase competencies for contributing to changing environment. The next session began with the presentation of Mr Bhavnesh, Research Scholar, Dept of Physics, SD College, Punjab on the topic "Investigating the impact of Atomic parameters on the K, L and M shell absorption Edge energies of spintronic, meta and multiferroic materials. In his study the atomic parameters of spintronic and multiferroic materials were determined along with their variations which is important to study the inherent characteristics and structures. Next, Miss Sunita Gulia, research scholar from GITM Gurugram/ Goenka University presented on "Cybersecurity Challenges in Education" where she emphasized on growing threats from cybersecurity and how it can be minimized by promoting the awareness among academic institutions and practical integration. Also advocates for adoption of multidimensional approach to cybersecurity education. Next presentation was from Mr Shishir Mohanty, Researcher from Fakir Mohan University, Odisha on the topic "Perception of teachers

on art integrated learning as an innovative approach for enhancing science education. The research explores the art integrated learning (AIL) as an innovative approach for enhancing STEM education. From data of 28 participants it was revealed that AIL is a catalyst for creativity and deeper understanding of 21st century skills. Also these findings would help in profession development, curriculum design, educational policy and development of STEM education. Next presentation by Chapaneri Nileshkumar R. from District Institute of Education & Training, Amreli (Gujarat) presented paper on Understanding Cyber Awareness among Pre-service trainees of Saurashtra Region**.** His findings indicate gaps in awareness and behaviour, highlighting the need for targeted educational interventions. Recommendations for universities and students aim to enhance cybersecurity awareness and foster safer online practices. Next presentation was from Mr Gopikanta Suna, Researcher from G.M University, Sambalpur, Odisha on the topic "Cybercrime awareness among post graduation students concerning their demographic variable. His research investigates into cyber crime awareness among 78 PG students and the results indicate no significance difference toward cyber crime among male and female students as well as Arts and Science students. Next, Miss Nidhi Tiwari from Manchester Global School, Hyderabad on the topic "Awareness of Cyber Security among Pre-service Teachers. The study aims to measure cybersecurity awareness among pre service teachers, identify the gaps and to provide recommendations. Her study emphasized on need of hands-on workshops and policy interventions to address the gaps by introducing the cyber security modules and competency based assessments. The study urge the need of cybersecurity literacy for modern teacher education. After the completion of the presentation by the participants, there was an interaction of the Chairperson in which he highlighted the need of cybersecurity awareness among students, teachers and academic institutions

The program culminated by honoring the respected chairperson by Co-chairperson Dr. Chakradhar Behera. Lastly the meeting was concluded with vote of thanks by Dr Ramesh Sethy to all the dignitaries and participants for their valuable research and discussion on cybersecurity awareness.

TECHNICAL SESSION-IIC

The technical session-IIC was held on 8th Feb.2025 from 2:00 PM to 5:30 PM in the Hall No.-53, Regional Institute of Education, Bhopal. The session was chaired by Prof. P. B. Sujit, working as

a Professor in the Department of EECS at IISER Bhopal and co chaired by Dr. A. K. Garg, Associate Professor in the Department of Education in Science and Mathematics, Regional Institute of Education (RIE), Bhopal. Dr. Manoj Mandal, Assistant Professor in the Department of Education in Science and Mathematics, Regional Institute of Education (RIE), Bhopal served as the moderator while Dr. Dalel Singh, Assistant Professor (Contractual), Department of Education, RIE, Bhopal as rapporteur**.**

Honour and Regard:

The session was started with the honor of the chairperson and the co-chair of this session. The chairperson of this session, Prof. P. B. Sujit, was honored by Dr. A. K. Garg. Similarly, Dr. A. K. Garg, Co-Chair of this session, was honored by Dr. Manoj Mandal, Assistant Professor in the Department of Education in Science and Mathematics, Regional Institute of Education (RIE), Bhopal with saplings. It was a symbol of token of love and gratitude. In the very beginning of this session, the chairperson, Prof. P. B. Sujit, was introduced by the moderator of this session with a detailed introduction. He is working as a Professor in the Department of EECS at IISER Bhopal. He also has experienced to work at IIT, New Delhi. He is completed his Ph.D. research in Aerospace Engineering in 2006. His research interest is in multi-robot systems, guidance and control and human-swarm interaction. The session started with a lead talk by Prof. P. B. Sujit on the topic on Emerging Technologies and application. He stressed that today, we stand at the cusp of a technological revolution, where emerging technologies are not only transforming industries but also redefining the way we live, work, and interact. Let's delve into some of these groundbreaking technologies and explore their diverse applications. For the sake of example AI and ML have transitioned from theoretical concepts to integral components of modern systems. They power applications ranging from virtual personal assistants and chatbots to advanced data analytics and autonomous vehicles. In healthcare, AI aids in diagnosing diseases and personalizing treatment plans, while in finance, it enhances fraud detection and risk assessment. The IoT connects everyday devices to the internet, enabling seamless communication and data exchange. This connectivity facilitates smart homes with automated lighting and heating, industrial automation for optimized manufacturing processes, and smart cities with efficient traffic management and energy usage. Advancements in biotechnology and genomics are revolutionizing medicine and agriculture. Techniques like CRISPR gene editing allow for precise modifications to DNA, offering potential cures for genetic disorders. In agriculture, genetically

modified crops exhibit improved yield and resistance to pests, contributing to food security. Quantum computing leverages the principles of quantum mechanics to perform computations beyond the capabilities of classical computers. This technology holds promise in optimizing complex systems, such as supply chains and financial models, and accelerating drug discovery by simulating molecular interactions at an unprecedented scale. Originally conceptualized for cryptocurrencies like Bitcoin, blockchain technology offers secure, transparent, and decentralized record-keeping. Its applications have expanded to include supply chain management, where it ensures product authenticity, and in voting systems, where it enhances transparency and reduces fraud. Nanotechnology involves manipulating matter at the atomic and molecular scale. It has led to the development of materials with enhanced properties, such as increased strength and lighter weight. Applications include targeted drug delivery systems in medicine, improved battery technologies, and the creation of self-cleaning surfaces. Originally conceptualized for cryptocurrencies like Bitcoin, blockchain technology offers secure, transparent, and decentralized record-keeping. Its applications have expanded to include supply chain management, where it ensures product authenticity, and in voting systems, where it enhances transparency and reduces fraud. VR and AR technologies create immersive experiences that blend the physical and digital worlds. In education, they offer interactive learning environments; in retail, virtual try-ons enhance the shopping experience; and in healthcare, they assist in surgical simulations and patient rehabilitation. The rollout of 5G networks promises faster data speeds, reduced latency, and the capacity to connect a vast number of devices simultaneously. This advancement is crucial for the proliferation of IoT devices, supports high-definition streaming, and enables innovations like remote surgery and autonomous vehicles. Emerging technologies in renewable energy, such as advanced solar panels and wind turbines, are making clean energy more efficient and affordable. Energy storage solutions, like improved batteries, are addressing the intermittency of renewable sources, facilitating a more reliable and sustainable energy supply. Autonomous systems, including drones and self-driving cars, are transforming sectors like logistics, agriculture, and transportation. They offer benefits such as increased efficiency, reduced human error, and the ability to operate in hazardous environments. However there are certain challenges. These includes data privacy, cybersecurity threats, ethical considerations, and the digital divide must be addressed to ensure that technological advancements benefit all of society. Finally he concluded that the rapid evolution of emerging

technologies is reshaping our world in unprecedented ways. By understanding and harnessing these innovations responsibly, we can address global challenges, improve quality of life, and build a sustainable future. After that he welcomed all participants for presentation.Total ten research studies have been presented in this session.

Summary of Presentations:

Presentation-I: The first research paper was presented by the first author, Dr.Smita Das, Senior Lecturer in Economics at Navrachana Higher Secondary School, Sama, Vadodara, Gujarat. The title of the paper was Bridging Employment Gaps in India: The Role of AI and the Gig Economy Case Studies of Uber and Urban Company. She defined the gig economy first as a labor market dominated by freelance, short-term, or task-based employment. Unlike traditional employment, where individuals work full-time for a fixed salary, gig workers are paid per task or assignment. This structure thrives on platforms like Uber, Fiverr, and Swiggy, which act as intermediaries connecting workers and clients. This sector has seen exponential growth in the last few years, driven by the COVID-19 pandemic, the digital revolution, favourable demographics, changing workforce preferences, economic necessity, and a demand for flexible, cost-effective employment solutions. Currently, there are 7-8 million gig workers in India, and they are expected to grow at a CAGR of 12% and reach 23-25 million by 2030, constituting 4.1% of the total workforce. It has become a popular option for entry-level workers seeking diverse income sources and flexible timings, as well as for freshers looking to gain initial experience and develop skills.

There were seven major objectives of this paper, such as (i). To analyze jobless growth in India (ii). To explore the role of the gig economy (iii). To assess AI's impact on employment (iv). To examine government policies (v). To highlight case studies (vi). To Investigate Income Stability in Gig Work (vii). To Examine Challenges in the Gig Economy. Moreover, this study analyzes six years (2018–2023) of data on AI and the gig economy through employment trends, revenue growth, and investment patterns of companies like Uber and Urban Company. It uses graphs, financial reports, and government data to assess job creation vs. displacement. The study also examines policy influences, AI-driven automation, and workforce adaptation. Findings help

determine whether AI is generating new jobs or replacing traditional roles in India's evolving job market.

The study also highlighted the different challenges of the gig economy, like legal ambiguity, wage disparities, the digital divide, job insecurity, etc. Furthermore, the paper also highlighted the role of artificial intelligence in the gig economy. AI is at the heart of gig platforms, driving efficiency, innovation, and growth with streamlining operations, scaling seamlessly, enhancing customer experience, making smarter decisions, and empowering workers as well. What is more, they got success in highlighting the role of AI in the gig economy through two case studies. These studies were conducted on Uber and Urban companies. The results of the case studies revealed that Urban Company has revolutionized India's gig economy by empowering over 50,000 service professionals with flexible job opportunities. AI-driven job matching, pricing, and skill training have improved earnings and efficiency. Expansion into tier-2 and tier-3 cities has boosted employment. With continuous innovation, Urban Company is shaping a sustainable and tech-driven future for India's service industry. On the other hand, Uber has transformed the way people commute in India while creating over 1.2 million jobs for drivers. AI plays a big role in matching rides, optimizing routes, and ensuring fair pricing. Even during the pandemic downturn, Uber adapted with safety features and incentives. By expanding into smaller cities, it continues to offer stable income, flexibility, and new opportunities in India's growing gig economy. At the end of this presentation, one participant asked the presenter a question, i.e.'How will your study help the academic personnel?' She has given a proper answer; the study will help in 'which types of courses need to be pursued and how we geographically move from one place to another'.

Presentation-II: The second presentation of this session was by Nizamuddin Ahmed from the Department of Education, Haldia Government College, PurbaMedinipur, West Bengal. With the title 'Adopting Artificial Intelligence in teaching-learning processes: Awareness challenges and expectations among secondary school teachers of West Bengal.' He studied an awareness of challenges and expectations regarding the adoption of Artificial Intelligence (AI) among secondary school teachers in West Bengal, employing a descriptive survey research design. There were 270 teachers selected from 54 schools in seven districts. The results of this study revealed that Artificial Intelligence (AI) literacy is limited, with only 9% of teachers being very

familiar with AI and 43% possessing minimal awareness. Despite limited exposure, 54% of teachers expressed interest in AI-related training, indicating a strong demand for capacity-building programs. The use of AI-based tools in teaching is low, with only 9% actively utilizing them. However, 51% of respondents are open to adoption, reflecting a significant opportunity for further integration. Major key challenges include lack of access to AI tools (27%), limited infrastructure (23%), and insufficient training (17%). Ethical concerns such as data privacy (12%) and over-reliance on technology (11%) also pose barriers. The research also highlighted the need for a complementary approach, with 67% of teachers advocating for integrating AI alongside traditional teaching methods. Personalized learning emerged as the most valued application of AI (37%), emphasizing its potential to enhance educational outcomes. However, gaps in awareness, access, and training must be addressed to realize AI's transformative potential. This research underscores the importance of targeted interventions to improve AI literacy, provide infrastructure support, and promote ethical and equitable integration of AI in secondary education. No question was asked by anyone who was present in the conference room.

Presentation-III: The third paper was a paper presented by Sonia Sthapak and Rakhi Sawlani from the University of Allahabad, Prayagraj, Uttar Pradesh. The title of this presentation was 'Evaluating the Effectiveness of Education Infographics as a Multimodal Tool for Science Instruction: A Bloom Taxonomy Approach.' The paper defined Infographic technology is revolutionizing education by integrating visual communication into traditional learning methods. The integration of text, images, and graphical elements, infographics transform complex concepts into easily digestible visual narratives. This paper explores the effectiveness of infographics as a multimodal instructional tool, illustrating its application in science education effectively targeting all three domains of Bloom's taxonomy of educational objectives, viz., cognitive, affective, and psychomotor, by facilitating skills such as information evaluation, synthesis, analysis, creativity, and critical thinking. The research study demonstrates how incorporating infographics into science topics promotes visual, digital, and scientific illiteracies among learners. It identifies best practices for implementing infographic tasks in the science classrooms, highlighting the concept and process phases of infographic tasks in the science classrooms, highlighting the concept and process phases of infographic creation, and its impact on the intellectual, emotional, and psychomotor development of learners. The study emphasizes

the unique functions of infographics in data visualization for educational purposes and to follow standard phases in infographic task implementation in science classrooms for knowledge retention, cognitive engagement, higher-order learning, and science-specific application. At the end of this presentation, the chairperson asked the presenter, have you ever used Bloom's Taxonomy in your class? She answered that yes, I am using it in the B.Ed. Students class effectively.

Presentation-IV:The next presentation was given by Mr. Dheeraj Kumar, Ph.D. Scholar, Department of Teacher Training and Non-Formal Education (IASE), Jamia Millia Islamia, New Delhi. The title of his study was 'A Study on Internet of Things (IoT) and Smart Systems in School Science Education: Innovative Applications at the Secondary Stage.' The Internet of Things (IoT) and smart systems have revolutionized science education at the secondary stage, enabling students to engage in interactive, data-driven, and inquiry-based learning experiences. IoT refers to the interconnected network of devices and sensors that gather and analyze data in real time, while smart systems leverage these tools to automate processes and enhance learning outcomes. Even the National Education Policy and National Curriculum for School Education 2023 emphasize subject-specific technology integration in school education. This study aims to understand the perception of science-trained graduate teachers and address this gap by identifying innovative applications and evaluating their impact on student learning outcomes. This study employed a descriptive survey design for quantitative research, using a random sampling method to select participants. The focus was on science-trained graduate teachers (TGTs) from government schools at the secondary stage in urban and semi-urban areas. A structured perception scale was administered to gather data. A total of 94 respondents participated, including 53 female teachers (56.39 percent) and 41 male teachers (43.61 percent). Data collection involved both physical and online formats, ensuring accessibility and convenience.

This study reflects that IoT fosters student engagement, enhances critical thinking, and effectively bridges theoretical knowledge with practical applications. Teachers expressed strong support for IoT's potential in promoting hands-on, inquiry-based, and collaborative learning approaches. Additionally, IoT's compatibility with curriculum standards and its ability to support real-time data collection were recognized as key advantages. However, several challenges limit

the effective adoption of IoT in schools. Teachers cited resource limitations, technical disruptions, and insufficient training as major barriers. A lack of confidence in using IoT tools further underscores the need for targeted capacity-building initiatives. The study also identified infrastructure gaps and funding constraints as critical areas that require attention to facilitate successful integration. Professional development emerged as an essential factor for enabling IoT adoption. Teachers emphasized the importance of practical training, workshops, and peer collaboration to build the necessary skills and confidence to effectively use the IoT in classrooms. These findings align with national educational policies, including NEP 2020 and NCFSE 2023, which advocate for the integration of emerging technologies to encourage interdisciplinary learning and prepare students for a technology-driven future.

Presentation-V:This presentation was presented by Naveen Subbaraman, Ph.D., School of Business Studies, R.V. University, Mysore Road, Bengaluru, and Dr. Tara Sabapathy, Former Chairperson, Post Graduate Department of Education, Bangalore University, Bengaluru, with the research titled 'Transforming Education Through Artificial Intelligence and Machine Learning: Benefits and Ethical Considerations.' AI serves as a vital resource in providing educational opportunities to students in remote and underserved areas. By leveraging technology, these students can access high-quality educational resources and support, bridging the educational divide. AI plays a crucial role in the educational sector by analyzing vast amounts of data to derive insights that can improve teaching and learning outcomes. This analysis allows educators to understand their students better and tailor their approaches accordingly. Moreover, the research has been recommendations for training teachers to leverage AI/ML, like AI-enhanced lifelong learning, personalized resource recommendations, customized learning paths with Edthena, staying updated with methodologies, integration of new technologies, etc. At the end of the presentation, the researcher focused on major aspects to define the key takeaways for educators, such as the integration of AI and ML relies on adaptability, AI can enhance educational outcomes, the importance of proper training for educators, viewing AI as a tool rather than a threat, and starting with accessible AI applications.

Presentation-VI: The title of the next presentation was Artificial Intelligence (AI) and Higher Education: A Systematic Review. This research study was presented by Arakhita Behera, Assistant Professor in Economics, Department of Social Science and Humanities (DESSH),

Regional Institute of Education (NCERT), Ajmer. The major objective of this systematic review study was to comprehend the definitions and research on FATE (i.e., Fairness, Accountability, Transparency, and Ethics) and AI found in the literature on higher education. This systematic literature evaluation comprised 25 papers in total from SCOPUS from 2019 to 2023. Transparency and Ethics (FATE) in the literature on higher education. The results indicate a preference for descriptive rather than technical descriptions of FATE and for quantitative rather than qualitative modes of investigation. In the evaluated works, fairness is determined to be the most investigated and represented concept; the literature provides a more precise definition of fairness. Since accountability and transparency have received little attention, ethics span a wide range of activities, and fairness and prejudice are elusive notions, additional discussions and in-depth definitions and analyses of all FATE terms are required. Here, a suggestion was given to the presenter by an expert: it would be better if you focused on some key words and major areas for analysis in the literature review.

Presentation-VII:The next paper was presented by Sushil Subham Rout, working as a research scholar in Jamia Millia Islamia, New Delhi. This paper critically examines the role of AI in transforming India's educational ecosystem, emphasizing its potential to bridge linguistic divides and foster inclusive, adaptive learning environments. Importantly enough, by exploring AI's applications in language processing, personalized learning platforms, and teacher empowerment, the paper highlights both the opportunities and challenges inherent in deploying AI within a multilingual society. The dominance of English in education, especially in higher education and urban centers, positions it as a critical resource for economic success. However, regional languages, despite their cultural richness and historical significance, often fail to provide the same level of access to economic opportunities. As a result, they remain relegated to informal domains, such as local communities and regional markets, perpetuating existing socio-economic hierarchies. This linguistic stratification reflects broader patterns of social inequality where language acts as both a symbolic and material marker of privilege. In this sense, the unequal distribution of linguistic capital emphasizes the role of language in maintaining societal divisions. It has been claimed by the researcher that the future of multilingual education in India, augmented by AI, is one of both profound promise and significant complexity. On one hand, *AI offers tools to bridge linguistic divides, personalize learning,* and *foster greater inclusivity.* On

the other hand, its*integration must contend with structural inequities, cultural sensitivities,* and*ethical dilemmas that could undermine its potential. Realizing the transformative possibilities of AI requires more than technological innovation;* it demands a nuanced, context-aware approach that prioritizes the voices and needs of marginalized communities. This includes actively incorporating regional and indigenous languages into AI systems, addressing the digital divide through targeted investments, and building teacher capacities to critically engage with AI tools. At last the research claimed that AI can help shape a future where all learners, regardless of their linguistic or socio-economic backgrounds, have the tools to thrive in an increasingly interconnected world.

Presentation-VIII:This is the presentation given by Aasia Maqbool from the School of Education and Behavioral Sciences, University of Kashmir, Hazaratbal, Srinagar, along with RasakAnnayat from the Department of Humanities, Social Science, and Management, NIT Srinagar. The title of the paper was 'Artificial Intelligence and Tomorrow's Education.' The study revealed that for AI to truly improve the quality of educational experiences, it will be helpful in three ways: first, affordable connectivity, hardware, and digital platforms must reach everyone. Second, continued investment in equipping teachers with the AI and digital skills needed to effectively leverage technology is essential. Third, AI literacy must be gradually but comprehensively incorporated into the curricula across subjects, while AI tools should facilitate learning in those same subjects.

Presentation-IX:The title of this presentation was 'Exploring Heutagogical Learning through Technology: Cultivating Autonomy and Lifelong Learning Skills,' which was presented by Mr. Vaibhav Verma, a student from the Centre of Research, Indian Institute of Teacher Education, Gandhinagar, Gujarat. This was completed with the two objectives: (i) to study how technology supports heutagogical learning practices and fosters learner agency and autonomy, and (ii). To explore the role of technology in cultivating lifelong learning skills in terms of heutagogical learning. The methodology of the study follows a review approach, using narrative synthesis to explore the intersection of technology, heutagogical learning, and lifelong learning skills. Data collection involves sourcing relevant studies from established academic databases such as Scopus, ERIC, JSTOR, and Google Scholar, ensuring credible and diverse references. The key finding of this research indicated that technology enhances heutagogical learning by fostering

learner agency, autonomy, and lifelong learning abilities. Digital platforms, adaptive learning technologies, OER, and collaborative tools facilitate personalized, flexible, and self-directed learning. Effective technology integration requires careful planning, robust infrastructure, and equitable access. Teacher training is crucial for incorporating heutagogical methods using digital resources, and policymakers should embed heutagogical principles into curriculum frameworks for adoption. At the end of this presentation, a question was asked by one of the participants: 'This paper is not showing any relevance for the school-level education system.' The presenter gave the answer that this study is more related to higher education.

Presentation-X: The last presentation of this session was given by Kiruthiga M.P. and Deepak S. from TISS Mumbai. The title of this was 'Integrating Artificial Intelligence in Project-Based Learning for Interdisciplinary Education.' The primary objective of this was to evaluate the impact of integrating AI in project-based learning (PBL) on students' learning engagement and the quality of student artifacts in social science education. The presenter underlined the impact of AI-enabled project-based learning for interdisciplinary education (PBLT) on student learning engagement in interdisciplinary topics of science and social science education, focusing on affective, behavioral, cognitive, and emotional dimensions. The study also examined the differences in student-created artifacts between traditional PBLT and AI-integrated PBLT in terms of quality, complexity, and creativity in various secondary classrooms of schools in Mumbai. Researchers focused on the fact that this study will help shape the future of PBL in social science education and promote inclusive and equitable learning experiences for all students.

At the end of this session, all the participants were congratulated and appreciated by the chairperson of this session. He discussed the relevant aspects of all the research studies presented in this session, and the entire session ended with a vote of thanks given by the moderator of this session. The coordinator felicitated the chairman and moderator felicitated the co-chairman.

Report on key note session by Dr. Mukul Bora (Day 3 on 9th Feb.2025)

The last common session of the National Conference on Recent Advances in Interdisciplinary Science (NCRAIS) was organized in Ninad, PSSCIVE Auditorium on 9th February, 2025. Prof. Mukul Bora, Director, Institute of Engineering & Technology, Dibrugarh, Assam was invited for the talk. The Common Session on "Local Scientific Knowledge and IKS and National Education Policy-2020" was successfully conducted on 9th February 2025 at 10:00 AM at NINAD, PSSCIVE Auditorium. The session aimed to explore the integration of Indigenous Knowledge Systems (IKS) with modern scientific knowledge in alignment with the National Education Policy (NEP) 2020**.** This session provided a platform for experts to discuss the significance of local scientific knowledge and its relevance in the current education framework. The session was chaired by Prof. Suresh Chand,former Dean DAV,Indore with the august presence of Prof.Jaidip Mandal,Principal RIE Bhopal and Prof.Ramesh Babu, OSD RIE Nellore.The program was moderated by Dr. Ganga Mehto. The program started at 10:40 am with the arrival of the

dignitaries- Dr. Mukul Bora, Prof. Suresh Chand, Prof. B Ramesh Babu and Principal Prof. Jaydip Mandal. The Principal greeted the speaker formally by offering a sapling.

After the welcome, respected Principal Prof. Jaydip Mandalwas called on stage for a brief introductory remark. Afterward, Dr. Santosh Kumar shared a concise introduction of Dr. Mukul Bora. He discussed how Dr. Bora has been instrumental in applying advanced scientific tools in the educational field. He highlighted his contributions in wide areas of sustainable construction, Indian Knowledge System, circular economy, COVID- 19 impacts in society development. He shared that Dr. Bora has authored almost 60 research papers in prominent national and international journals.

Following this brief overview of his esteemed background, Dr. Bora was called on stage to deliver his talk. He started his talk on the topic Local Scientific Knowledge and IKS and National Education Policy- 2020 in which he focused on the relation between IKS and NEP 2020. He shared his support for the Prime Minister's vision of India becoming a world leader, or Vishwaguru.

He expressed his views on the 3 pillars of knowledge system namely Indian Knowledge System which corresponds to Lord Brahma, Multidisciplinary education which corresponds to Lord Vishnu and Disruptive Technology (Artificial Intelligence, Machine Learning, IoT and other 21st century skills) which corresponds to Lord Mahesh. He also emphasized the Vedas being an integral part of the knowledge system which includes Rigveda, 6 Vedangs and 4 Upvedas.

Later in his talk hedrew a connection between Ayurveda and modern-day life. He also emphasized on modern relevance of IKS in which he shared data that provedglobal prevalence of herbal and ayurvedic medicines having their roots tracing back to India. He also shared views about Bhootvidya or modern psychiatry and its relevance to modern ayurvedic practices. He discussed about regenerative farming practice of Japan which had roots in Rigveda. He emphasized the need for practicing Yoga for physical and mental well being of the human community as a whole. He gave references of research done in Harvard University which showcased use of music therapy for treatment of psychological disorders.

He concluded his talk by sharing some healthy ayurvedic practices that can help people achieve healthy lifestyle. The program concluded with a vote of thanks delivered by Prof. Suresh Chand.

Poster Presentation

The session was organized on 09-02-2025, Time: 11:30 am to 1:00 pm, in Room No. 66, of the Regional Institute of Education (RIE), Bhopal, with the chairpersons Prof. I. P. Aggarwal, former principal of RIE Bhopal, Prof. (Capt.) Rashmi Singhai, head of DESM, RIE, Bhopal, Dr. Chakradhar Behera, Dr. Manoj Manadal, and Dr. Mukesh Kumar, working as an assistant professor in the Department of Education in Science and Mathematics, Regional Institute of Education (RIE), Bhopal. The session was started to give honor and regard to all the judges. Prof. (Capt.) Rashmi Singhai has given appreciation to all the members who contributed to making this conference a success. Dr. Kulveer Singh Chauhan is working as an assistant professor in the Department of Education in Social Science and Humanities (DESSH), RIE, Bhopal. Dr. Dalel Singh, Assistant Professor (Contractual), Department of Education, RIE, Bhopal, worked as rapporteur in this session. A total of nineteen papers were presented through poster presentation from all over the theme. The research paper presented by Kiruthiga M.P. from TISS Mumbai is titled 'Integrating Artificial Intelligence in Project-Based Learning for Interdisciplinary Education.' was selected as best by the judges of this session and she was

awarded with best poster award by the chief guest of the valedictory programme Prof. Ashutosh Kumar Singh, Director, IIIT Bhopal.

Valedictory Session on 9th Feb.2025 held at NINAD Auditorium at 2:15 PM

The valedictory function of the program marked the culmination of an enriching and transformative learning journey. The eminent personnel gracing the occasion included the chief guest Prof. Ashutosh Kumar Singh, Director, IIIT Bhopal, whose presence added prestige and significance to the event. Other dignitaries included Prof. Jaydip Mandal, Principal of the Institute (Chairperson), Prof. Chitra Singh, Head Extension, Prof. Rashmi Singhai, Head DESM, Dr. Chakradhar Behera, coordinator, of NCRAIS-2025 and Dr. Ganga Mahto, who served as the comparer for the event.

Professor Jaydip Mandal, as the Chairperson of the event and Principal of the Institute, likely took the opportunity to encourage participants not only to reflect on their learning's but also to actively promote interdisciplinary science and engage in further research endeavors. Professor Mandal extended a warm and gracious welcome to all attendees, fostering an atmosphere of commonality and collaboration among participants. His introductory remarks likely set a positive tone, emphasizing the importance of the conference's themes and the collective effort required to advance science education.

The valedictory function of the National Conference on Recent Advances in Interdisciplinary Science was a momentous occasion, graced by the esteemed presence of Prof. Ashutosh Kumar Singh, Director, IIIT Bhopal. His gracious acknowledgment of the institute's efforts in organizing the conference likely served as a commendation of the dedication and commitment of all involved. In his address, he praised the institute for its initiative in hosting the conference, recognizing the importance of such events in fostering dialogue, collaboration, and progress in the field of interdisciplinary science. His presence and words of encouragement added a sense of accountability and inspiration to the valedictory function, reinforcing the importance of science education and the commitment to its ongoing advancement.

During the event, Dr.Chakradhar Behera, coordinator of the conference presented a comprehensive conference report, highlighting key discussions, insights, and outcomes from the various sessions and presentations. This report provided valuable insights into the progress made

during the conference and served as a basis for future initiatives and collaborations in the field of science education. Feedback from participants was solicited and acknowledged, recognizing the importance of their contributions and perspectives in shaping the conference's success and informing future endeavors.

Certificate distribution honored the dedication and involvement of individuals who contributed to the conference's achievements, acknowledging their commitment to advancing science education.

After hearing the citation of Prof. Ashutosh Kumar Singh, Director, IIIT Bhopal, feedback from the participants became even more significant, as it reflected not only the organizer's sentiments but also the collective appreciation of those who attended the conference.

Professor Chitra Singh delivered a heartfelt vote of thanks, expressing gratitude to all stakeholders, including organizers, participants, sponsors, and supporters, for their invaluable contributions to the success of the conference. Her words likely conveyed appreciation for the collaborative spirit and shared commitment to excellence that characterized the event.

The valedictory function came to a close with a stirring rendition of the national anthem, instilling a sense of patriotism and unity.

Moments of Valedictory Session

Media coverage

बदलते जमाने का अखबार
पीपुल्स समाचार

Date 11 Feb, 2025 - Newspaper - page11

Image Text

क्वालिटी रिसर्च वर्क से पूरी होगी उद्योगों की जरूरत: प्रो. सिंह

क्षेत्रीय शिक्षा संस्थान में कॉन्फ्रेंस का आयोजन

रिपोर्टर • IamBhopal
Mobile no. 9827080406

क्षेत्रीय शिक्षा संस्थान में तीन दिवसीय नेशनल कॉन्फ्रेंस ऑन रीसेंट एडवांसेज इन इंटरडिसिप्लिनरी साइंस का आयोजन किया गया। इस कॉन्फ्रेंस में देश की विभिन्न विश्वविद्यालय व शोध संस्थानों से पधारे अकादमिक विद्वानों, शोधकर्ताओं और विद्यार्थियों ने विभिन्न विषयों पर अपने शोधपत्र विशेषज्ञों के समक्ष प्रस्तुत किए। कुल 70 शोध पत्र एवं पोस्टर प्रस्तुत किए। समापन सत्र के मुख्य अतिथि भारतीय सूचना तकनीक संस्थान के निदेशक प्रो. आशुतोष कुमार सिंह ने कहा कि भारतीय शोध संस्थाओं को अपने गुणवत्तापूर्ण शोध से औद्योगिक आवश्यकताओं को पूर्ण करने की क्षमता विकसित करना होगी। इससे देश के प्रतिभा पलायन पर रोक लग सकेगी। चीन में अनुसंधान व विकास के सुधारों की चर्चा करते हुए उन्होंने भारतीय शोध संस्थानों में मौलिक शोध को बढ़ावा देने पर जोर दिया।

इस मौके पर भारतीय विज्ञान संस्थान, बेंगलुरु के जेसी बोस, फेलो प्रोफेसर शिवा उमापति, भारतीय विज्ञान शिक्षा अनुसंधान संस्थान भोपाल के निदेशक प्रो.गोवर्धन दास एवं नार्थ ओडिशा विश्वविद्यालय के पूर्व कुलपति प्रो.पीके चांद ने अपने विचार प्रकट किए। प्रो. जयदीप मंडल ने आभार व्यक्त किया।

देशभर से आए शोधार्थियों ने पेश किए 70 शोध-पत्र और पोस्टर एक्सपर्ट्स ने दिए टिप्स

भोपाल (आरएनएन)। क्षेत्रीय शिक्षा संस्थान में तीन दिवसीय अंतर्विषयक विज्ञानों में अद्यतन प्रगति पर राष्ट्रीय सम्मेलन का आयोजन किया गया। इस कांफ्रेंस में देश के विभिन्न विश्वविद्यालय व शोध संस्थानों से आए विद्वानों और विद्यार्थियों ने विभिन्न विषयों पर 70 शोध पत्र एवं पोस्टर प्रस्तुत किए। समापन सत्र के मुख्य अतिथि व वक्ता भारतीय सूचना तकनीक संस्थान के निदेशक प्रो. आशुतोष कुमार सिंह ने कहा कि भारतीय शोध संस्थाओं को अपने गुणवत्तापूर्ण शोध से औद्योगिक आवश्यकताओं को पूर्ण करने की क्षमता विकसित करनी होगी। इससे देश के प्रतिभा पलायन पर रोक लग सकेगी।

अंतर्विषयक विज्ञानों में अद्यतन प्रगति पर राष्ट्रीय सम्मेलन

चीन में अनुसंधान व विकास के सुधारों की चर्चा करते हुए उन्होंने भारतीय शोध संस्थानों में मौलिक शोध को बढ़ावा देने पर जोर दिया। सम्मेलन के विभिन्न सत्रों में विशिष्ट अतिथि के रुप में देशभर से आए विशेषज्ञों ने विज्ञान के महत्वपूर्ण विषयों पर विस्तृत प्रकाश डाला। कार्यक्रम में अतिथियों का स्वागत संस्थान के प्राचार्य प्रो. जयदीप मंडल ने किया।

विज्ञान में अद्यतन प्रगति पर राष्ट्रीय सम्मेलन का आयोजन

भोपाल (काप्र)।

क्षेत्रीय शिक्षा संस्थान, भोपाल में तीन दिवसीय अंतर्विषयक विज्ञानों में अद्यतन प्रगति पर राष्ट्रीय सम्मेलन का आयोजन किया गया। इस नेशनल कांफ्रेंस में देश की विभिन्न विश्वविद्यालय व शोध संस्थानों से पधारे अकादमिक विद्वानों, शोधकर्ताओं और विद्यार्थियों ने विभिन्न विषयों पर अपने शोधपत्र विशेषज्ञों के समक्ष प्रस्तुत किए।

राष्ट्रीय सम्मेलन में कुल 70 शोध पत्र एवं पोस्टर शोधकर्ताओं ने प्रस्तुत किए। समापन सत्र के मुख्य अतिथि व वक्ता भारतीय सूचना तकनीक संस्थान, भोपाल के निदेशक प्रोफेसर आशुतोष कुमार सिंह ने कहा कि भारतीय शोध संस्थाओं को अपने गुणवत्तापूर्ण शोध से औद्योगिक आवश्यकताओं को पूर्ण करने की क्षमता विकसित करनी होगी। इससे देश के प्रतिभा पलायन पर रोक लग सकेगी। चीन में अनुसंधान व विकास के सुधारों की चर्चा करते हुए उन्होंने भारतीय शोध संस्थानों में मौलिक शोध को बढ़ावा देने पर जोर दिया। राष्ट्रीय सम्मेलन के विभिन्न सत्रों में विशिष्ट अतिथि के रुप में पधारे भारतीय विज्ञान संस्थान, बेंगलुरु के जेसी बोस फेलो प्रोफेसर शिवा उमापति, भारतीय विज्ञान शिक्षा अनुसंधान संस्थान भोपाल के निदेशक प्रो.गोवर्धन दास एवं नार्थ उड़ीसा विश्वविद्यालय के पूर्व कुलपति प्रो.पी.के.चांद ने बीज वक्तव्य के रुप में अपने विचार प्रस्तुत किए। डिब्रूगढ़ विश्वविद्यालय में तकनीकी विज्ञान विभाग के निदेशक प्रोफेसर मुकुल सी.बोरा ने भारतीय ज्ञान परंपरा पर अपने सारस्वत व्याख्यान से उपस्थित शोधकर्ताओं को आयुर्वेद, शासन कला, धातु विज्ञान एवं अर्थव्यवस्था पर प्रचीन भारत की उपलब्धियों पर विस्तृत प्रकाश डाला। नेशनल कांफ्रेंस में आए अतिथियों का स्वागत संस्थान के प्राचार्य प्रोफेसर जयदीप मंडल ने किया। इस अवसर पर विज्ञान शिक्षा व गणित विभाग की अध्यक्ष प्रोफेसर रश्मि सिंघई ने कान्फ्रेंस के संयोजक डॉ.चक्रधर बेहरा को कांफ्रेंस के सफल आयोजन हेतु धन्यवाद दिया। प्रोफेसर चित्रा सिंह ने उपस्थित अतिथियों शोधकर्ताओं एवं विद्यार्थियों का राष्ट्रीय सम्मेलन में प्रतिभाग करने हेतु धन्यवाद ज्ञापित किया।

thin considering the spirit of service employees were provided free D.P. Mishra were present.

Ashutosh Kumar Singh, Director Indian Institute of Information Technology,(IIIT) Bhopal being presented a memento during a National Conference on "Recent Advances in Interdisciplinary Science" (NCRAIS-2025) at Regional Institute of Education in Bhopal on Monday. Pioneer photo

National Conference
on
"Recent Advances in Interdisciplinary Science"
NCRAIS - 2025

7-9th February, 2025

Regional Institute of Education, Bhopal

National Council of Educational Research and Training
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