भारतीय राष्ट्रीय युवा विज्ञान अकादमी
Indian National Young Academy of Science

भारतीय प्रौद्योगिकी संस्थान हैदराबाद
Indian Institute of Technology Hyderabad

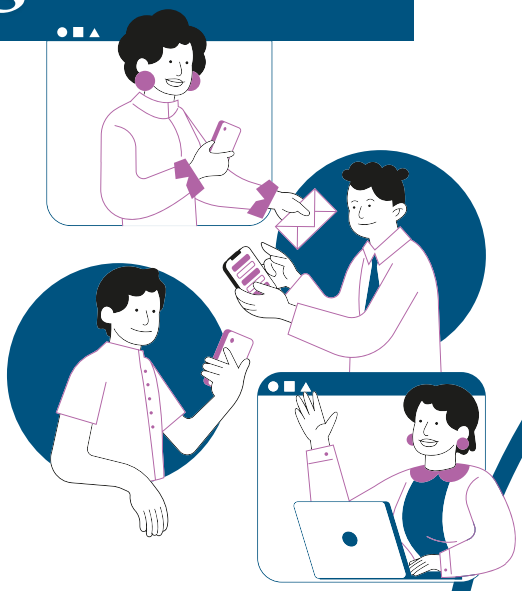
सत्यमेव जयते
शिक्षा मंत्रालय
MINISTRY OF EDUCATION

REPORT

Science Communication Outreach & Public Engagement

A Capacity Building Workshop for Young Faculty under aegis of

Malaviya Mission Teacher Training Programme (MMTTP)
of
Ministry of Education, GoI



01 - 05 March, 2025

IIT Hyderabad

Collaborators

Ministry of Education, Government of India
Indian National Young Academy of Science (INYAS)
Indian Institute of Technology Hyderabad (IITH)

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Table Of Content

About
SCOPE Workshop

The Indian Institute of Technology Hyderabad in association with the Indian National Young Academy of Science (INYAS), New Delhi inaugurated SCOPE: Science Communication Outreach and Public Engagement, a 5 day long fully residential Capacity Building Workshop on Science Communication for STEM Faculty under the Malaviya Mission Teacher Training Programme (MMTTP) of the Ministry of Education, Government of India. The initiative advocates to equip STEM faculty members with requisite science communication and public interaction skills to foster effective public engagement and bridging the gap between science and society. The workshop provided a vast platform to 36 participants from 22 National Institutes of Technology (NITs) spread across India. With plans for expansion to Centrally Funded Technical Institutes (CFTIs), the workshop aims to create a ripple effect in academia and beyond. Through interactive sessions, hands-on training and interdisciplinary collaboration participants will gain insights into modern techniques for engaging with diverse audiences, including students, media, and policymakers.

The SCOPE Workshop emphasizes practical training in science communication, the integration of modern tools such as AI-driven content creation, data visualization and the development of a 1-credit science communication course at participants' institutions. By strengthening the science-public interface, this initiative will contribute to improved research dissemination and enhanced public trust in science. By fostering a network of trained science communicators, this initiative aims to improve public engagement with science, enhance research visibility and contribute to India's vision of becoming a global leader in STEM innovation by 2047.

Vision

The 4 A's of SCOPE

Awareness

Raising awareness about the significance of science communication among researchers, educators and policymakers.

Academic Development

Empowering educators to design and integrate science communication courses into academic curricula

Adaptability

Developing flexible science communication strategies that can be tailored to different audiences, mediums and cultural contexts.

AI Integration

Familiarizing participants with AI and digital tools such as AI-driven content generation, data visualization, and automated audience analysis.

About

The Collaborators

सत्यमेव जयते

शिक्षा मंत्रालय
MINISTRY OF
EDUCATION

Ministry of Education, Government of India

The Ministry of Education (MoE), Government of India is the epicentre for curating and implementing policies to strengthen the country's educational infrastructure. The MoE was established on September 26, 1985, through the 174th amendment to the Government of India (Allocation of Business) Rules, 1961. The ministry functions through two key departments: the Department of School Education & Literacy (SE&L), which concentrates on universalizing education and improving literacy, whereas the Department of Higher Education (HE), focusses on one of the world's largest higher education systems. The MoE keeps the bird's eye view to expand quality education, promote socio-economic inclusivity for marginalized groups and provide financial assistance. It also proliferates international collaborations to enhance educational opportunities overseas. Guided by the National Education Policy (NEP) and global best practices, the ministry plays a pivotal role in sculpturing India's holistic development by ensuring equitable, inclusive and high-quality education for all.

About

The Collaborators

भारतीय राष्ट्रीय युवा विज्ञान अकादमी
Indian National Young Academy of Science

Indian National Young Academy of Science (INYAS), New Delhi

The Indian National Young Academy of Sciences (INYAS) stands as the sole recognized academy for young scientists in India. Established by the Indian National Science Academy (INSA) council in December 2014, its primary goal is to advance science education and foster networking opportunities for young scientists, both nationally and internationally. Currently, INYAS boasts a membership of 119 members. INYAS' brainchild has a cluster of three flagship events that are RuSETUP (Rural Science Education and Training Utility Programme), WiSDom (Women in Scientific Domain) and PRAYOJAN (Post-PhD: Research, Academia, and Industry Opportunities, Science Journalism, Grant Writing, and Networking) and which mandatorily works in the field of educational equality, gender equality and higher scientific communication. INYAS also fosters global scientific collaboration with international scientific academies like ISC, IAP, GYA, etc. that aims to learn and proliferate the Indian Scientific Knowledge in the global ecosystem.

About

The Collaborators

भारतीय प्रौद्योगिकी संस्थान हैदराबाद
Indian Institute of Technology Hyderabad

Indian Institute of Technology Hyderabad (IIT-H)

Indian Institute of Technology Hyderabad (IITH) is a premier institute of science and technology established in 2008. IITH has been consistently ranked in the top 10 institutes in India for Engineering according to NIRF making it one of the most coveted schools for science and technology in the country. It offers undergraduate programs in all the classical engineering disciplines, applied sciences, design, as well as several modern interdisciplinary areas. Students are given a flexibility to explore a broad set of areas, and potentially pursue a minor or double major in a discipline that is not their own. Students who wish to seek a deeper understanding of their own discipline are strongly encouraged to get involved in cutting-edge research with the help of a faculty to mentor them, and earn an Honors in their own field. IITH creates a unique holistic ecosystem for education that offers interactive learning, a very flexible academic structure, cutting-edge research, strong industry collaboration, and entrepreneurship. This is an environment which enables students and faculty to translate their dreams into realities.

Programme Schedule

Day 1: 1st March 2025 (Saturday)	
2.00 - 2.30 pm	Inaugural Session
2.30 - 3.30 pm	Special Address by **Prof. B. S. Murty**, Director at IIT Hyderabad
3.30 - 4.00 pm	Tea Break
4.00 - 5.30 pm	Open Session about the background & perspective of participants about sci. comm.
Day 2: 2nd March 2025 (Sunday)	
9.00 - 10.45 am	Press Release, Writing for Popular Media by **Dr. Meher Wan**, Scientist at CSIR - National Institute Of Science Communication and Policy Research
11.00 - 12.45 pm	Basics of Science Journalism by **Mr. Hari Pulakkat**, Editor, IIT Madras -Shaastra and Science Journalist
12.45 - 2.00 pm	Lunch
2.00 - 4.00 pm	Science Communication with Diverse Audiences by **Dr. Manoj Kumar Patairiya**, Former Director CSIR-NISCAIR & Adjunct Professor at NIAS, Bengaluru
4.00 - 4.30 pm	Tea Break
4.30 - 6.00 pm	Storytelling in Science by **Mr. Pallava Bagla**, Science Journalist - NDTV
Day 3: 3rd March 2025 (Monday)	
9.00 - 10.45 am	Visual Communication of Science by **Dr. Nimish Kapoor**, Scientist at Birbal Sahni Institute of Palaeosciences
11.00 - 12.45 pm	Engaging with Media and Social Media by **Mrs. Mitalee Agrawal**, Lead - Business Development, MarCom & Community Engagement at CCoE Telangana
12.45 - 2.00 pm	Lunch
2.00 - 4.00 pm	Ethics and Challenges in Science Communication by **Ms. T V Padma**, Science, environment and health journalist, Delhi
4.00 - 4.30 pm	Tea Break
4.30 - 6.00 pm	Audio/Video Hands-on Activity by **Mr. Shane Rydquist**, Director of Delivery and Solutions at Impact Science, Cactus Communications
Day 4: 4th March 2025 (Tuesday)	
9.00 -11.00 am	Academic Publishing by **Dr. Rohini Kitture**, Deputy Editor, SMALL and Physical Sciences Journals at Wiley
11.30 - 1.00 pm	Use of AI in Science Communication by **Dr. Deeksha Gupta**, Director, Global Strategy for Society Programs at American Chemical Society
1.00 - 2.00 pm	Lunch
2.00 - 4.00 pm	Ethics in Scientific Publishing by **Dr. Deeksha Gupta**
4.00 - 4.30 pm	Tea Break
4.30 - 6.00 pm	Group Activity with **Dr. Rohini Kitture**
Day 5: 5th March 2025 (Wednesday)	
9.00 - 10.45 am	Manuscript Writing by **Dr. Rohini Kitture**
11.00 - 12.45 pm	Feedback & Valedictory Session

Inaugural Session

The inaugural session was initiated with a welcome and opening remarks by Dr. Sriparna Chatterjee, Scientist at CSIR-Indian Institute of Minerals and Materials Technology. She cordially welcomed the participants and dignitaries, announced the commencement of the 5-day long programme, highlighted the 11 expert resource persons and underlined the broad topics to be covered during the workshop. The session was then followed by the ceremonial lighting of the lamp, symbolizing the initiation of this noteworthy training programme. Following the programme trajectory the welcome address was delivered by Prof. B.S. Murty, Director of Indian Institute of Technology Hyderabad. Prof. Murty vocalised about the institute's recent initiatives and emphasized the urgent necessity to identify collaborative opportunities that align with the vision of Viksit Bharat 2047. He generously congratulated the organizing committee for conceptualizing this much-appreciated workshop and extended his best wishes to all participants.

The inaugural session was then carried ahead by Prof. Chandra Shekhar Sharma, Professor at IIT Hyderabad and Co-Chair of the Global Young Academy who showcased an overview of the entire workshop, spotlighting India's exponential growth in research output, particularly in the fields of technology, healthcare and renewable energy. He emphasized the significance of altering the perception of science and setting milestones to make research more accessible to the public through effective science communication. As mentioned, the workshop is designed to offer hands-on sessions, expert lectures and course modules on utilizing social media, visual storytelling, infographics, AI tools, audience analysis and the integration of policy-making. He also focussed on the significance of interdisciplinary collaboration and the demand for initiatives like such to address challenges faced in upskilling faculty in science communication.

Inaugural Session

Towards the end, the inaugural session was concluded with a word of thanks by Dr. Nishant Chakravorty, Chair of Indian National Young Academy of Science (INYAS) and Associate Professor at IIT Kharagpur. He expressed his warm gratitude to all dignitaries, participants, resource persons, IIT Hyderabad, INYAS, the Ministry of Education and the organizing committee members for their tireless efforts and unparalleled contributions for conceptualizing and arranging the workshop. The inauguration concluded on an enthusiastic note with a group photograph, marking the official commencement of this impactful residential science communication workshop.

Glimpses
Inaugural Session

Special Address

Prof. B.S. Murty

Director Indian Institute of Technology Hyderabad

The special lecture titled "The Joy of Research" was delivered by Prof. B.S. Murty, Director at Indian Institute of Technology Hyderabad where he flagged the importance of undertaking high-quality research and communicating it to relevant audiences effectively and passionately. Additionally he shared insights on the role of quality research in amplifying India's global academic standing, discussing aspects like QS rankings, publishing in reputed journals and the urgency of quality over quantity in scientific publications. He emphasized fostering independent research ideas among faculty and students, thus uplifting the youth in science. He mentioned building an environment where excitement for research and exploration sustains a continuous zeal for learning among professors. He encouraged the fellows for stepping out of one's comfort zone to drive academic growth and innovation. Stressing upon the fact that peer recognition is the natural consequence of impactful work, therefore urging young researchers to have a clear vision and goal. Prof. Murty further articulated about IIT Hyderabad's interdisciplinary PhD program, which empowers students from different departments to collaborate. He introduced IIT Hyderabad's Mission 365 and highlighted several of the institute's innovative initiatives. He further accentuated about initiatives such as Uchhatar Avishkar Yojana (UAY), the DRDO-Industry-Academia Center of Excellence (DIA CoE), the Centre for In-Situ and Correlative Microscopy (SATHI-CISCoM) and Open to All Teaching (OAT) that prove themselves transformatory in the field of academia. He further reiterated that education must be student-centric, advocating for flexibility in learning composition that encourages innovation. He emphasized the urgent need of nurturing startups and developing indigenous technologies to contribute to India's self-reliance and growth. Following his talk the floor was open for questions from the participants. In response to the questions Prof. Murty shared anecdotes from his own experiences

Glimpses

Special Address by Prof. B.S. Murty

Press Release & Writing for Popular Media

Dr. Meher Wan

Scientist at CSIR - National Institute Of Science Communication and Policy Research

Dr. Meher Wan, Scientist at CSIR-NIScPR conducted the session on Press Release and Writing for Popular Media which provided a cumulative understanding of how scientific information can be effectively communicated to a larger audience. The session explored the purpose and structure of media releases emphasizing the necessity for clarity, conciseness and engagement while avoiding technical and scientific jargon. Dr. Wan discussed the different types of press releases and the bridge built between scientists and the public through science journalists. The major takeaway from the talk was the significance of maintaining accuracy in science communication with an eye against the dangers of hyping scientific findings. Dr. Wan flagged how exaggeration can mislead the audience leading to loss of trust in science. The session also highlighted the role of popular science magazines in building research accessible, including the growing presence of publications in regional languages. Through real-world examples and expert insights the entire talk underscored the importance of conscious science communication in shaping public opinion.

A compelling press release consists of several key elements. First, a clear headline that is both catchy and informative, summarizing the main discovery. The lead paragraph should immediately answer the essential questions: What? Who? When? Where? Why? Simplified language is crucial to make the information accessible to non-specialist readers. Including quotations from experts adds credibility and depth to the story. Additionally, incorporating visuals and data such as images, infographics, and statistics enhances comprehension. Finally, a strong press release includes a call to action, encouraging readers to explore further or connect with the researchers.

Popular science writing requires a balance between accessibility and accuracy. Engaging storytelling makes scientific articles compelling, allowing readers to relate to the discovery process. Maintaining factual accuracy by relying on peer-reviewed sources is essential for credibility. To avoid alienating readers, science communicators should use simple language and analogies to explain complex topics. Furthermore, good science writing ensures a balanced representation of facts, avoiding exaggeration or misleading claims. Dr. Wan emphasized that effective science communication depends on tailoring content for different audiences. When addressing the general public, the focus should be on simplicity and engagement, using everyday examples to explain scientific concepts. For students and academics, articles can retain some technical depth while ensuring readability. Meanwhile, policymakers require concise takeaways and clear implications of the research to support decision-making.

Dr. Meher Wan's lecture provided invaluable insights into the art of science communication, equipping participants with practical skills to write impactful press releases and popular science articles. By applying these principles, researchers and educators can contribute to a scientifically literate society and make research more accessible to all.

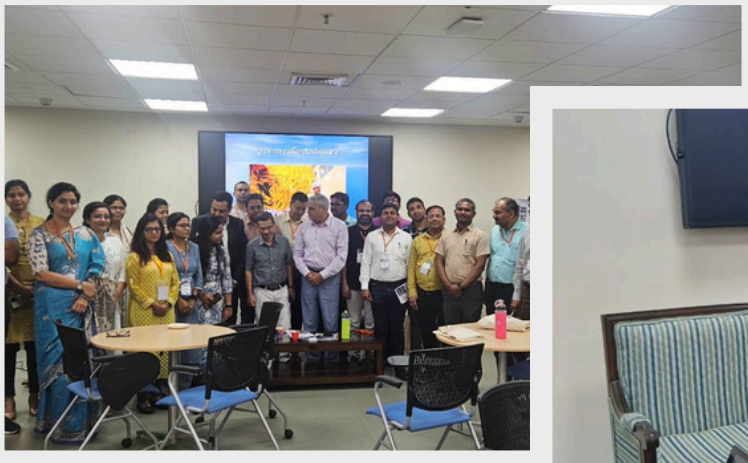
Basics of Science Journalism

Mr. Hari Pulakkat

Editor, IIT Madras-Shaastra and Science Journalist

Shri Hari Pulakkat conducted the session on 'Basics of Science Journalism' and provided his valuable insights into the skill of transforming science into a more engaging and accessible domain. He underlined the urgent necessity to encourage popular science writing, highlighting that journalism is ultimately a human activity that aims to engage with human emotions. Through an interactive discussion, he explored the difference between a job and a career in science writing, the importance of reading to improve writing skills, and the necessity of writing consistently, regardless of immediate inspiration.

The talk also touched upon diverse approaches to science communication, from writing for science columns to using animation and cartoons to engage children. Shri Pulakkat underscored the role of strong PR in media relations, with companies actively reaching out to journalists to shape narratives. The discussion further explored the growing significance of podcasts, blogs and other digital platforms in science communication offering new ventures for reaching wider audiences.



Science Communication with Diverse Audiences

Dr. Manoj Kumar Patairiya

Former Director CSIR-NISCAIR & Adjunct Professor at NIAS, Bengaluru

Prof. Manoj Kumar Patariya delivered an insightful lecture on the theme "Science Communication with Diverse Audiences." His talk emphasized the importance of science communication in making scientific knowledge accessible and beneficial to the common man. He highlighted that science communication is the key to bridging the gap between scientific advancements and society, ultimately fostering a culture of scientific temper and innovation. Science communication plays a crucial role in spreading scientific awareness in India. Prof. Patariya cited Part IV A, Section 51 A of the Indian Constitution, which states that it is the duty of every citizen to develop scientific temper, humanism, and the spirit of inquiry. Effective science communication ensures that scientific knowledge reaches the masses, empowering them to make informed decisions and benefit from technological advancements. Prof. Patariya explained the communication cycle, which involves a Sender, a Message, a Receiver, Understanding, and Feedback. He emphasized that the effectiveness of science communication depends on the clarity of the message, the medium used, and the audience's environment. Science communicators must tailor their messages to ensure accurate comprehension and engagement. The lecture outlined several objectives of science communication, including motivating young minds and fostering excitement towards science, developing journalistic skills to safeguard public interest by analyzing and correcting misinformation, cultivating a culture of scientific and technological temper leading to innovation, enhancing negotiation and advocacy skills for science activism and public opinion formation, empowering the public and policymakers with scientific knowledge for informed decision-making, serving as a tool for innovation, research, and scientific advancements, and building bridges between science, media, society, industry, and governance.

Prof. Patariya underscored the significance of scientific advice in decision-making and policymaking. He referenced the Chernobyl disaster as an example of how the absence of transparent scientific communication can lead to catastrophic consequences. India's diverse linguistic, cultural, and media landscape presents both challenges and opportunities for science communication. Prof. Patariya categorized science communication into different formats, including scholarly or technical communication for researchers and academicians, semi-technical communication for professionals requiring moderate technical details, popular communication for the general public ensuring easy comprehension, science journalism for reporting scientific developments in the mass media, and science for children to make science appealing to young learners. Science communication should be structured around topics related to science and technology, languages to communicate in regional languages for broader reach, mass media using print, radio, TV, folk, interactive, and digital media, target groups including common citizens, children, farmers, women, workers, students, and experts, and formats such as news reports, articles, features, science fiction, and other storytelling techniques. To make science communication engaging and impactful, the following elements are crucial: scientific content ensuring factual accuracy and credibility, simple language avoiding jargon and making concepts relatable, a how and why approach addressing fundamental questions, analysis breaking down complex topics for clarity, and newsworthiness ensuring relevance and timeliness. Prof. Patariya introduced the concept of "selling science as a sugar-coated pill." He emphasized the need to make science communication interesting by adding anecdotes to create relatability. Prof. Patariya also highlighted career prospects in science communication across various sectors, including science and technology organizations, mass media, the corporate sector, international organizations, civil society, and self-employment in science writing and consultancy. He stressed the need for inclusive science communication, ensuring that even the most marginalized sections of society have access to scientific knowledge. He acknowledged the traditional divide between scientists and journalists and pointed out that collaboration between these two professions is crucial for effective science communication.

He outlined the process of writing engaging popular science articles, which includes selecting a topic that is current and relevant, relying on primary and verified sources for information, reading and understanding comprehensive research before writing, developing a structured synopsis, writing catchy and clickbait-style titles such as "Surya Aaj Chutti Pe Hai" for an eclipse article, crafting an engaging introduction to capture reader interest, developing the subject with a dynamic and creative presentation in the main body, using technical terms while simplifying complex jargon, incorporating visuals like tables, graphs, and cartoons, summarizing key insights effectively in the conclusion, refining the article for clarity, accuracy, and readability through review and editing, and selecting the right platforms for publication.

He concluded by discussing global approaches to science communication, highlighting best practices from different countries that can be adapted to the Indian context. Prof. Manoj Kumar Patariya's lecture provided a comprehensive overview of science communication, emphasizing its importance in fostering scientific literacy, engaging diverse audiences, and driving informed decision-making. His insights on different communication formats, challenges, and career opportunities highlighted the crucial role of science communicators in shaping a scientifically aware society.

Storytelling in Science

Mr. Pallava Bagla

Science Journalist - NDTV

Shri Pallava Bagla delivered an engaging lecture on "Storytelling in Science," emphasizing the critical role of storytelling in making scientific concepts more accessible and engaging. He highlighted that teachers are natural storytellers, as they have the ability to simplify complex subjects and captivate their audience through effective communication techniques.
Science communication benefits greatly from simple yet powerful outreach tools. Shri Bagla discussed the importance of various outreach methods, including A4 outreach releases, still photos, video footage, interviews, quotes, animations, infographics, reels, and other multimedia elements. These tools enhance the ability to reach diverse audiences and convey scientific messages effectively. He emphasized the need for storytellers to spend time and space with scientists to craft compelling science communication narratives.

A well-structured science story requires meticulous planning and execution to ensure clarity, accuracy, and impact. The example of Chandrayaan-3's news coverage was cited to showcase the importance of multilingual communication. Former ISRO Chairman Dr. S. Somanath's address in Hindi, English, Sanskrit, Malayalam, and Tamil demonstrated how regional languages can be effectively used to make scientific achievements more relatable and widely accessible.

Timing is crucial in science reporting. Shri Bagla stressed the importance of choosing the correct moment to report a scientific breakthrough, as it helps capture maximum public attention. He also discussed the significance of video formats, highlighting the difference between the classic horizontal video format and the newer vertical video format. The duration of the video plays a vital role in engaging the target audience, ensuring that the message is neither too lengthy nor too brief.

To make science reporting impactful, it is essential to startle the audience with engaging storytelling techniques. Shri Bagla encouraged thinking beyond conventional media approaches and finding unique angles that differentiate science reporting from mainstream media coverage. Innovation and creativity in storytelling can make science more appealing and accessible to a larger audience.

The interaction between scientists and the media is a crucial element of effective science communication. Shri Bagla emphasized the need for a strong point of contact between the scientific community and journalists, ensuring accurate representation of scientific facts in the media. This collaboration helps bridge the gap between scientific advancements and public understanding.

Shri Pallava Bagla's lecture provided valuable insights into the art of storytelling in science, reinforcing the need for innovative communication strategies, timely reporting, and a strong media-scientist connection to make scientific knowledge more engaging and widely disseminated.

Visual Communication of Science

Dr. Nimish Kapoor

Scientist at Birbal Sahni Institute of Palaeosciences

Dr. Nimish Kapoor delivered an insightful lecture on "Visual Communication of Science," emphasizing the importance of audiovisual (AV) formats in making scientific knowledge more accessible and engaging. He highlighted how AV communication simplifies complex concepts, bridges the gap between technical jargon and comprehension, and engages a diverse audience. The use of storytelling and human-angle stories was underscored as a crucial element in effective science communication. The importance of AV formats in science communication was illustrated through real-world examples. Dr. Kapoor discussed Skymet Weather's short film, which effectively used a human-centric narrative to convey scientific information. Another notable example was the story "Saving the Saviour," which was mentioned by Prime Minister Narendra Modi in his Mann Ki Baat address, highlighting the restoration of Kashmir's Wular Lake. Additionally, "Nagaland is Changing" was cited as an example of how visual storytelling can depict transformation and scientific progress. Dr. Kapoor elaborated on the storytelling process, emphasizing the role of visuals, interviews, script, and narration in crafting compelling science communication content. He pointed out how science fiction, such as the film "The Martian" (2015), can offer valuable lessons about the real world. He outlined the content development process, which includes research, storyline creation, scriptwriting, shooting, narration, and post-production with visual effects. A distinction was also drawn between science fantasy and science fiction, highlighting how science fiction is often grounded in scientific principles and plausibility. Dr. Kapoor introduced the concept of "Three Cultures"—scientists, journalists, and the public—where scientific facts are created, communicated, and consumed.

The discussion further explored the potential structure of a one-credit course on science fiction, which would include research of the script, scriptwriting, presentation, and review. Dr. Kapoor stressed the importance of addressing both "Why" and "How" in science communication—understanding scientific processes in the lab and translating them into accessible narratives for citizens through the "7 W's and 1 H" approach (What, Why, Where, When, Who, Which, To Whom, and How). The difference between scientists and journalists was discussed, particularly in terms of publication timing, risk assessment, and writing styles. He stressed that what can be visually depicted should not necessarily be verbally communicated, ensuring an efficient use of media. He also introduced two communication models: the inward triangle used by scientists, which starts with background information and moves toward supporting details and conclusions, and the upward triangle used for public communication, which begins with the bottom line, followed by relevance and supporting details.

The lecture concluded by addressing the most challenging aspect of science communication: balancing simplification with accuracy. Dr. Kapoor emphasized that science communicators must ensure that information is accessible without distorting the essence of scientific facts. This delicate balance is crucial in making science understandable while maintaining its integrity.

Engaging with Media and Social Media

Mrs. Mitalee Agrawal

Lead - Business Development, MarCom & Community Engagement at CCoE Telangana

Mrs. Mitalee Agarwal delivered an insightful lecture on "Engaging with Media and Social Media," emphasizing the significance of visibility in effective communication. She stressed the notion that "what is seen is sold," highlighting the importance of creating a brand image by actively engaging with media and social platforms. Using the example of Bidri craft, a traditional local handicraft, she illustrated how integrating local elements can enhance outreach and recognition. She discussed the four pillars of democracy and provided an overview of general social media statistics for 2024, shedding light on the key reasons why people use social media. These reasons include staying in touch with others, filling spare time, reading news stories, finding entertaining content, and keeping up with trending discussions. Understanding these motivations, she argued, is crucial for effective media engagement.

Mrs. Agarwal introduced the CHIP Framework, which outlines what media seeks in content. She emphasized the growing role of short movies in spreading information and capturing audience attention. Furthermore, she highlighted five key points essential for any communication strategy: identifying the opportunity, defining the unique selling proposition (USP), ensuring market relevance, establishing social relevance, and providing a clear future course of action (CTA). She elaborated on the importance of Search Engine Optimization (SEO) as a strategic tool for enhancing visibility and ensuring content reaches the right audience. Different aspects of an institution's media engagement were explored, like announcements, current happenings and structured communication approaches such as the FACHIO Model developed by MIT which focuses on: Focused Campaigns, Alumni Network, Campus Activity, Organic Content, Institute Updates and HNI Network

Additionally, she emphasized the importance of forming a strong student community and harnessing talent for institutional outreach. She suggested structuring media content effectively, starting with a compelling heading, followed by highlights in bullet points and detailed content. A crucial strategy discussed was "Sailing with the Big Shark," which involves collaborating with established media entities to enhance credibility and reach. She also introduced #CCoE Tuesday Tickler, an initiative aimed at maintaining engagement and momentum in media communication. Another key takeaway was the principle of starting at the local level and then expanding globally, ensuring a strong foundation before scaling up.

Mrs. Agarwal concluded her lecture with the "Five S of News" framework, which includes sorting, strengthening, shining, standardizing, and sustaining content. These elements, she explained, are essential for maintaining media relevance, credibility, and long-term impact in the ever-evolving digital landscape.

Ethics and Challenges in Science Communication

Ms. T V Padma

Science, environment and health journalist, Delhi

Ms. T. V. Padma, a distinguished science journalist and communicator, delivered an insightful lecture on "Ethics and Challenges in Science Communication." She emphasized the ethical dilemmas and responsibilities that science communicators face while disseminating information. Ethics, often intertwined with morality, plays a pivotal role in ensuring accurate and responsible science communication. Drawing from Kantian ethics, she highlighted that rational beings operate under universal moral principles, where actions, circumstances, and purposes must align with ethical reasoning.

She classified science communicators into four categories: Science Public Relations Officers (PROs), PR agencies, science popularizers, and science journalists. Each of these groups has distinct motivations and responsibilities in shaping public perceptions of science. The primary reasons for science communication include increasing visibility, addressing demands from policymakers and governments, securing funding, and benefiting society. However, the field faces key challenges, such as data integrity, communicating uncertainties and risks, and the ethical responsibility of reporting findings without distortion.

Institutional PROs and PR agencies, in particular, focus on securing positive media coverage to enhance institutional reputation, justify public funding, and compete for resources. This often results in exaggeration of research findings, selective presentation of results, and undisclosed conflicts of interest related to funding sources. Additionally, the rapid expansion of social media has given a platform to individuals who may share unverified scientific content, contributing to misinformation and public distrust.

T. V. Padma underscored the importance of responsible and ethical science communication, urging communicators to prioritize accuracy, transparency, and public trust. She stressed that, in an era of misinformation, science communicators have a duty to uphold truth and integrity, ensuring that science serves as a tool for informed decision-making rather than manipulation.

She concluded her speech by motivating the young faculty members to share their research achievements with media to work upon the misleading of news spread across the digital domain. By sharing the exact facts, the science will gain popularity and reach the target audience. Such initiatives shall be undertaken by creating a network pool of journalists and scientists. By regular and positive interactions among such pools, journalists will adapt more about scientific understanding while scientists will grasp more about content creation and presentation to general audiences.

Audio/Video Hands-on Activity

Mr. Shane Rydquist

Director of Delivery and Solutions at Impact Science, Cactus Communications

Shane Rydquist conducted a hands-on activity session focused on Audio/Video content creation using various digital tools and software. The session provided practical exposure to different platforms that aid in visual storytelling and science communication. Participants explored Sorah AI and Napkin.ai, which help in generating and structuring ideas for content creation. For visual frame creation and scientific illustrations, he introduced Mind the Graph, Visual, and Adobe Illustrator. These tools enable researchers and science communicators to design vector images that can be animated for better engagement and clarity in presentations, publications, and outreach materials.

By incorporating these tools, the session emphasized the importance of visual communication in science, allowing participants to gain hands-on experience in using modern AI-driven and design-based software for effective storytelling.

Academic Publishing & Manuscript Writing

Dr. Rohini Kitture

Deputy Editor, SMALL and Physical Sciences Journals at Wiley

Dr. Rohini Kitture delivered an insightful lecture on "Academic Publishing," highlighting the significance of publishing in the academic world. She addressed the fundamental question of why researchers publish, emphasizing that making research public contributes to recognition, career advancement, impact, and societal responsibility. Publishing plays a crucial role in securing promotions, grants, and applications while ensuring that taxpayer-funded research benefits society. She provided an overview of Wiley's editorial model and the publishing process, explaining the distinction between in-house editors, who work full-time on journals, and external editors, who are subject-matter experts balancing research responsibilities. The role of a peer review editor extends beyond manuscript assessment and reviewer selection to decision-making, journal strategy, and community engagement. A critical aspect of scientific publishing is ethics, ensuring that submitted work is original, properly cited, and free from fabrication, plagiarism, or unethical practices.

Journals evaluate manuscripts based on their scope, significance, clarity, and ethical integrity. Many manuscripts face desk rejection due to technical failures, ethical concerns, redundancy, lack of clarity, or insufficient scientific merit. Understanding publication ethics and the types of scientific misconduct, such as duplicate submissions and inadequate citations, is essential for maintaining academic integrity. The Committee on Publishing Ethics (COPE) sets guidelines to address these concerns. She elaborated on different peer review models, including single anonymous, double anonymous, collaborative, open, and transparent peer review. Understanding how reviewers evaluate manuscripts is crucial for researchers to navigate the publishing process effectively.

To maximize publication impact, she advised structuring manuscripts clearly, selecting the right journal, and ensuring an engaging paper title and abstract. On March 5, 2025, she conducted a session on manuscript writing, beginning with an open-floor discussion to recall previous workshop insights. She emphasized the challenges of writing, including understanding the target audience, structuring content effectively, and creating a strong manuscript outline. The "KISS THE ONION" (Keep It Short and Simple) approach was recommended to maintain clarity and avoid unnecessary repetition. She provided strategies for optimizing abstracts, structuring them to include background, the problem statement, the approach, key findings, and implications. She encouraged using the active voice for clarity, with passive voice reserved for specific cases where the performer is unknown or irrelevant.

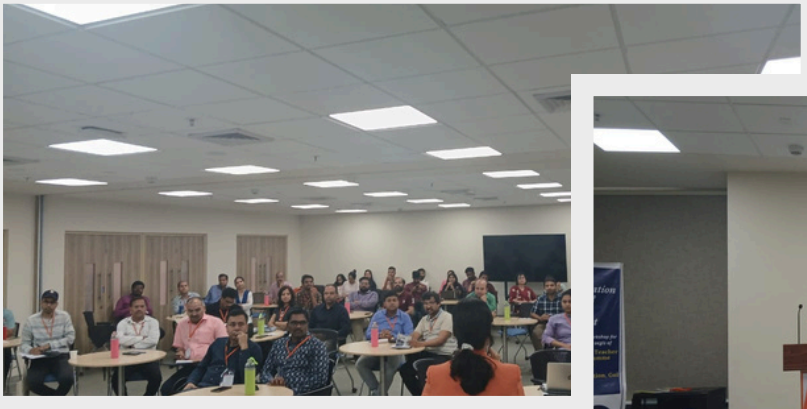
Figures play a crucial role in academic publishing, as they are often reviewed before the text. She emphasized the importance of clarity, simplicity, and high-quality visuals. The Introduction should be inspiring, informative, and interesting, avoiding excessive length. The Results and Discussion section should support claims with evidence, highlighting critical and surprising findings. References should be precise, balanced, and carefully reviewed to maintain credibility. Dr. Kitture concluded by stressing the importance of revision and careful manuscript preparation, ensuring that every aspect of a paper is refined for maximum impact in academic publishing.

Use of AI in Science Comm. & Ethics in Scientific Publishing

Dr. Deeksha Gupta

Director, Global Strategy for Society Programs at American Chemical Society

Dr. Deeksha Gupta delivered a session on the role of AI in Science Communication and Ethics in Scientific Publishing, highlighting both its benefits and concerns. She emphasized the importance of communicating science to policy makers, children, the general public, and for raising awareness. AI has revolutionized the field by making information discovery easier, organizing vast amounts of data, and providing human-like responses compared to traditional search engines. While AI packages information in an easy-to-understand format, it lacks accountability, credibility, and the ability to judge the novelty or accuracy of research. The rapid emergence of AI, reaching 1 million users in just five days, signifies its growing influence. However, over-reliance on AI could limit intellectual growth, creativity, and lead to generic, uninspired scientific communication. Dr. Gupta provided recommendations for using AI in academic writing and publishing, stressing that AI should be used for initial drafts, but not for verbatim text. Users should verify AI-generated citations and ensure AI tools do not replace originality and critical thinking. In scientific publishing, AI can assist in idea generation, perspective-building, and connecting different concepts, but also poses risks such as data exposure and privacy breaches. She concluded by discussing how AI can identify new researchers for peer review and the ethical implications of using AI-generated content in scholarly communication, urging responsible and informed use of these tools.



Valedictory Session

The valedictory session was chaired by Prof. Chandra Shekhar Sharma, Dr. Nishant Chakravorty and Dr. Meher Wan where the future roadmap of this workshop was discussed with the participants for implementing S&T communication policy. The session was then followed by detailed feedback from each participants that opened the windows for incorporating positive suggestions such as industry-academia networking, and focusing extensively on hand-on-sessions. The participants were also encouraged to share their ideas on science communication course developmentFollowing the trajectory, the participants and organizing committee members were presented token of participation followed by a group photograph session.

Glimpses Of
Valedictory Session

Conclusion & Way Forward

The SCOPE - Science Communication Outreach and Public Engagement workshop successfully fulfilled its objective of enhancing science communication skills among STEM faculty. Over the five-day intensive program, participants gained insights into press releases, storytelling, audiovisual communication, academic publishing, ethical challenges, and AI applications in science communication. The workshop provided a unique blend of theoretical knowledge and hands-on experience, ensuring a holistic learning approach for the attendees.

A key takeaway from the workshop was the importance of responsible science communication—ensuring accuracy, avoiding exaggeration, and making scientific knowledge accessible to diverse audiences. The discussions highlighted the need for engaging storytelling, ethical considerations, and the strategic use of digital platforms to amplify the impact of science communication.

The workshop's success underscores the critical role of science communication in shaping an informed society. By continuing to build on these learnings, we can create a more scientifically aware and engaged public, ensuring that research and innovation reach the people who need them the most.

Conclusion & Way Forward

- Sustain and expand science communication training by integrating these skills into faculty development programs and academic curricula.
- Encourage interdisciplinary collaborations between scientists, journalists, and media professionals to bridge the gap between research and public understanding.
- Leverage AI and emerging digital tools responsibly to enhance communication while maintaining credibility and ethical standards.
- Develop a structured course on science communication for faculty and researchers to institutionalize best practices.
- Foster a community of science communicators who can engage with policymakers, educators, and the general public effectively.

APPENDICES

Resource Person

EXCELLENCE IN SCIENTIFIC PUBLISHING

Prof. B.S. Murty
Director, IIT Hyderabad

SCIENCE COMMUNICATION: LARGER PERSPECTIVES

Shri Hari Pulakkat
IIT Madras - Shaastra

STORYTELLING IN SCIENCE

Shri Pallava Bagla
NDTV

PRESS RELEASE & WRITING FOR POPULAR MEDIA

Dr. Meher Wan
CSIR-NIScPR

VISUAL COMMUNICATION

Dr. Nimish Kapoor
Birbal Sahni Institute of Palaeosciences

ENGAGING WITH MEDIA & SOCIAL MEDIA

Ms. Mitalee Agarwal
CCoE Hyderabad

ETHICS & CHALLENGES IN SCIENCE COMM.

Ms. T V Padma
IIT Madras - Shaastra

- **USE OF AI IN SCI. COMM.**
- **ETHICS IN PUBLISHING**

Dr. Deeksha Gupta
American Chemical Society

- **ACADEMIC PUBLISHING**
- **MANUSCRIPT WRITING**

Dr. Rohini Kitture
Wiley Publications

INFOGRAPHICS

Shane Rydquist
Editage Digital Media Solutions, CACTUS

COMMUNICATION WITH DIVERSE AUDIENCE

Dr. Manoj Kumar Patairiya
NIAS, Bengaluru

Participants

S.No.	Name	Affiliation
1	Dr. Saidi Reddy Parne	NIT Goa
2	Dr. Suraj Kumar Mukti	NIT Raipur
3	Dr. Awanish Kumar	NIT Raipur
4	Dr. Anurag Singh	NIT Delhi
5	Dr. Piyush Kumar Patel	MANIT Bhopal
6	Dr. Dheerendra Mishra	MANIT Bhopal
7	Dr. Bikash Kumar Sarkar	NIT Meghalaya
8	Dr. K. Senthilkumar	NIT Meghalaya
9	Dr. Ranjita Das	NIT Agartala
10	Dr. Supriyo Dutta	NIT Agartala
11	Dr. K. Surender	VNIT, Nagpur
12	Dr. Oroosa Subohi	VNIT, Nagpur
13	Prof. Alok Shukla	NIT Mizoram
14	Prof. Madhurima Jana	NIT Rourkela
15	Prof. Kshetramohan Sahoo	NIT Rourkela
16	Dr. Chetti Prabhakar	NIT Kurukshetra
17	Dr. Prem Prakash Mishra	NIT Nagaland
18	Dr. P. Chinnamuthu	NIT Nagaland
19	Prof. Mohit Trivedi	NIT Warangal
20	Prof. Kamalini Devi	NIT Warangal
21	Dr. Tushar Dhabal Das	NIT Arunachal Pradesh
22	Dr. Jayakesh K	NIT Arunachal Pradesh
23	Dr. Bijan Kumar Roy	NIT Silchar
24	Dr. Nabanita Adhikary	NIT Silchar
25	Dr. J. Krishna Murthy	NIT Andhra Pradesh
26	Dr. K. Sri Phani Krishna	NIT Andhra Pradesh
27	Dr. Bikash Chandra Sahana	NIT Patna
28	Dr. Udai Pratap Rao	NIT Patna
29	Dr. Bharathi Ganesan R	NIT Calicut
30	Dr. Chandrasekaran	NIT Hamirpur
31	Dr. Abhishek Singh	NIT Hamirpur
32	Dr. Jai Gopal Gupta	NIT SIKKIM
33	Dr. Smita Naval	MNIT Jaipur
34	Dr. Hardeep Kumar	NIT Uttarakhand
35	Dr. Himanshu Pandey	SVNIT, Surat
36	Dr. Sarita Kalla	SVNIT, Surat

Organizing Team Members

Prof. Chandra S. Sharma
Professor at IIT Hyderabad

Dr. Nishant Chakravorty
Associate Professor at IIT Kharagpur
Chair INYAS

Dr. Sriparna Chatterjee
Scientist at CSIR-IMMT

Dr. Meher Wan
Scientist at CSIR-NIScPR

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Project Assistant at INSA-INYAS

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Research Scholar at IIT Hyderabad

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Research Scholar at IIT Hyderabad

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Post-Doc Researcher at IIT Hyderabad

Vaishnavi Pawar
Project Staff at IIT Hyderabad

VV Kalyani
Project Staff at IIT Hyderabad

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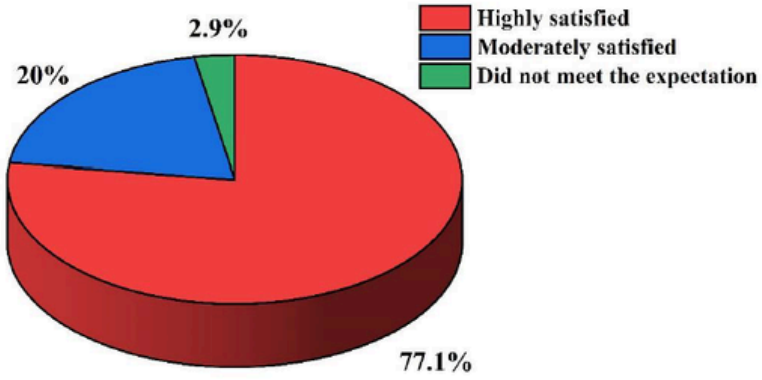
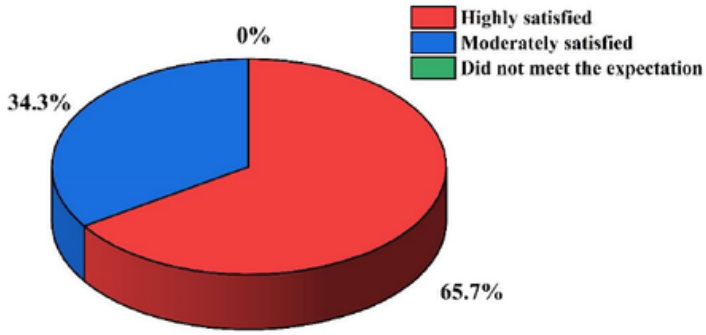
Demographic Distribution

Feedback Analysis

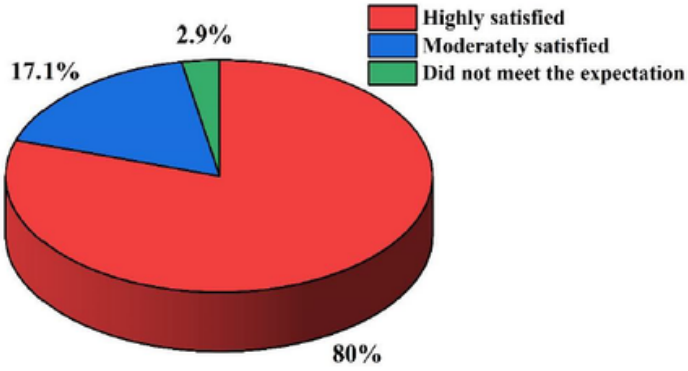
How would you rate the overall organization of the workshop?



How relevant was the workshop content to your professional needs?

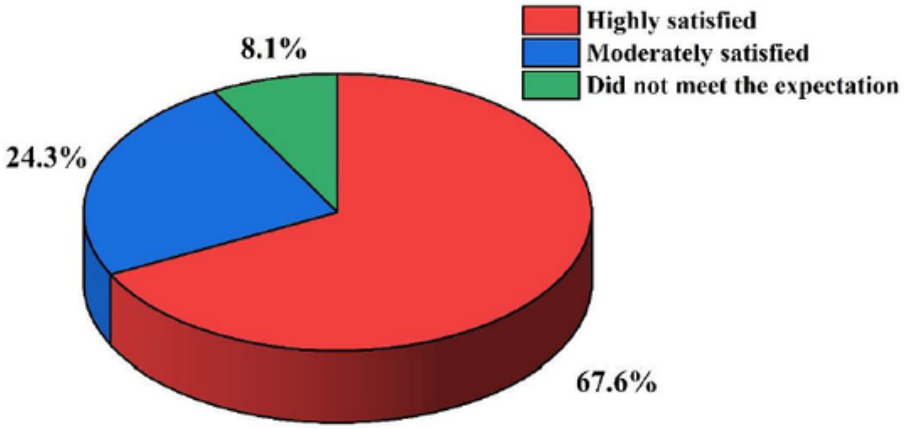


How effective were the resource persons in delivering the sessions?

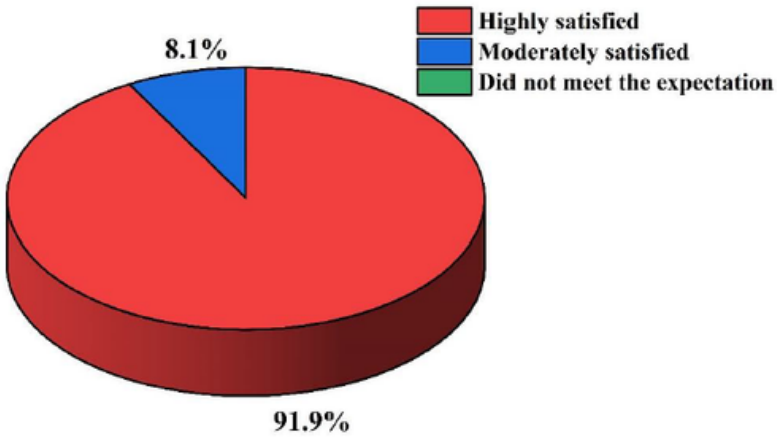


Feedback Analysis

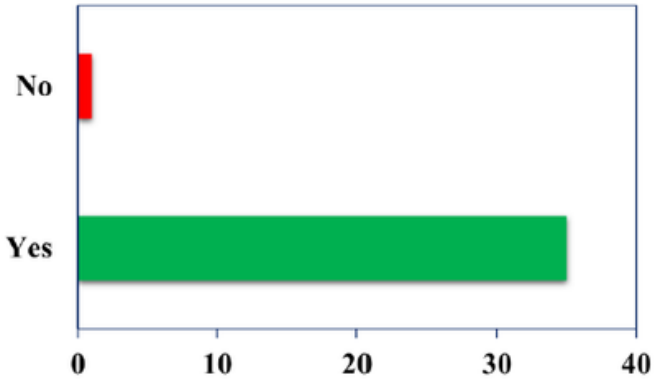
How would you rate the practical exercises and interactive activities?



How would you rate the logistics and venue arrangements?



Would you recommend this workshop to your colleagues?



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Report drafted by

Ananya Banerjee, INSA-INYAS New Delhi

Science Communication Outreach & Public Engagement

MARCH 01 - 05, 2025

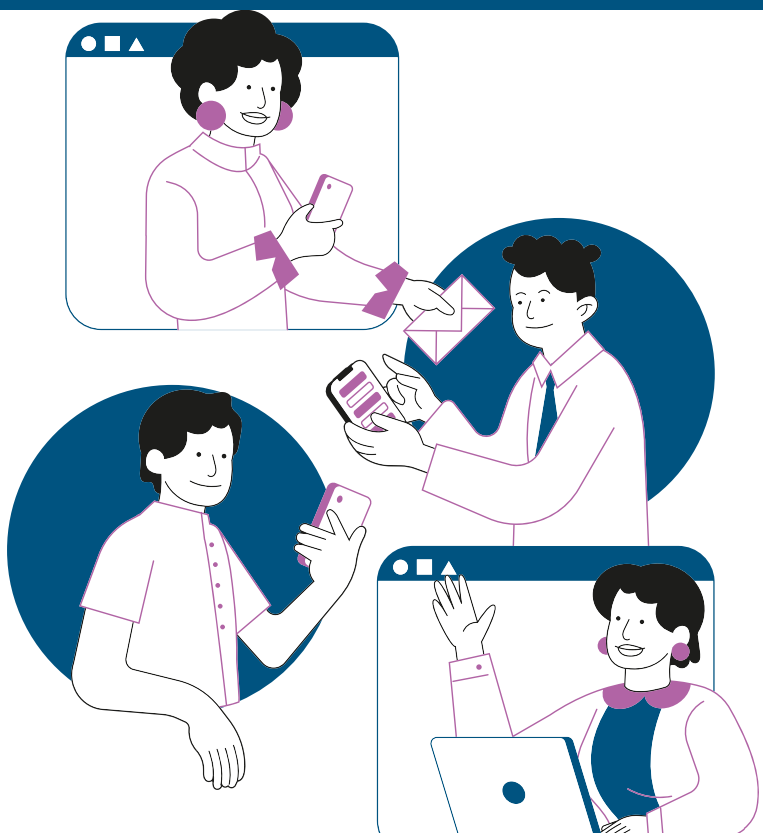
A Capacity Building Workshop for Young Faculty under aegis of

Malaviya Mission Teacher Training Programme (MMTTP) of Ministry of Education, GoI

Indian Institute of Technology Hyderabad

Programme Highlights

- Science Communication Skills
- Use of Modern Tools and Techniques
- Creation of Collaborative Network
- Modern Communication Tools
- National Development *Viksit Bharat Mission*



Organizers

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सत्यमेव जयते

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