Report on the 1st NSOU RDC Online Lecture

By

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Organised by: Research & Development Cell, Netaji Subhas Open University
Date: 12th June, 2025 | Time: 7.30 PM IST | Platform: Zoom and YouTube Live

Inaugurating a new chapter in the university's research outreach, the Research and Development Cell (RDC) of Netaji Subhas Open University (NSOU) held its first online lecture on 12th June, 2025. The programme was streamed live on Zoom and YouTube, drawing participation from academics, researchers, and students across the globe. The session was compered by Dr. Srabanti Choudhury, Assistant Professor of Sociology, NSOU, who set the tone for the evening with a thoughtful introduction on the significance of launching the RDC Lecture Series as a platform for critical knowledge exchange.

Welcome and Addresses

The session commenced with a warm Welcome Address by Prof. Manan Kumar Mandal, Director of the Research & Development Cell. Prof. Mandal contextualised the formation of the RDC within the larger vision of NSOU's commitment to fostering a vibrant and inclusive research ecosystem that bridges the gap between academic inquiry and public discourse.

This was followed by a Special Address by Prof. Anirban Ghosh, Professor of Zoology, NSOU. Prof. Ghosh reflected on the dynamic intersections of science, society, and pedagogy in contemporary India, highlighting the pivotal role of interdisciplinary research in building self-reliant knowledge systems.

Keynote Lecture

The highlight of the event was the keynote address delivered by Professor Kaushik S. Das, Professor of Physics at the University of Maryland Eastern Shore, USA, and Fellow of the American Physical Society. His lecture, titled: **"The 21st Century Landscape of Science and Technology: India's Opportunities & Challenges"** was an intellectually invigorating journey into the shifting paradigms of science and technology in the contemporary world. Prof. Das began by delineating the global trends in frontier areas such as artificial intelligence, genetic engineering, quantum computing, sustainability science, and space exploration. He then shifted focus to India's unique demographic advantage, arguing that our youthful population offers not just manpower, but a deep reservoir of intellectual possibility.

However, he critically noted the systemic barriers within India's science ecosystem—ranging from rote learning and poor research infrastructure to a lack of integration between scientific advancement and societal needs. Drawing upon his own experience as a physicist, educator, and public intellectual, Prof. Das called for nurturing scientific self-efficacy—the belief among students and early-career researchers that they can be global innovators and contributors.

Lecture Synopsis

Title: *The 21st Century Landscape of Science and Technology: India's Opportunities & Challenges*
Speaker: Prof. Kaushik S. Das, University of Maryland, USA

The 21st century stands at a remarkable juncture where exponential technological growth has become the defining feature of human civilization. Prof. Das's lecture navigated the promising terrain of innovation—from artificial intelligence and genetic editing to sustainable energy and quantum mechanics—offering a panoramic view of global scientific progress.

For India, this rapid evolution aligns with a transformative potential: a young, intellectually vibrant population and a rich scientific heritage. Yet, as Prof. Das cogently argued, opportunity must meet reform. A fragmented research ecosystem, lack of hands-on learning, and disconnection between science, society, and policy present formidable hurdles. In response, he emphasised building a culture of confidence and scientific self-efficacy, particularly among students and early-career researchers.

The talk blended empirical insight with policy critique, offering a blueprint for how India might claim its rightful place on the global map of innovation—not through mimicry, but by reimagining its own developmental priorities through the lens of science for public good. In a sweeping and thought-provoking address, Professor Kaushik S. Das explored the complex interplay between scientific progress and societal development in the 21st century, with a focused lens on India's global positioning in the landscape of emerging technologies. His lecture offered a rare blend of empirical insight, futurist imagination, and policy sensibility, underlining the urgent need for structural reform in India's research and innovation ecosystem.

Key Takeaways from the Lecture:

1. Global Technological Tectonics
   Prof. Das opened by delineating how science and technology today are witnessing accelerated convergence—spanning AI, nanotechnology, gene therapy, clean energy, quantum computing, and zero-gravity physics. He urged Indian institutions to actively participate in shaping these frontier

fields, not merely as consumers, but as producers of globally impactful knowledge.

2. India's Youth Dividend and Intellectual Capital
   With the world's largest youth population, India stands on the brink of a historic opportunity. However, this "intellectual surplus," he warned, risks becoming a lost asset unless matched with deep reforms in pedagogy, infrastructure, and funding.
3. Barriers to Scientific Empowerment
   A critical portion of the lecture highlighted the entrenched challenges—rote learning, exam-centric education, limited laboratory access, inadequate mentorship, and insufficient translational research. These, he argued, foster disengagement and inhibit the cultivation of original scientific thought.
4. Scientific Self-Efficacy: A Core Theme
   A concept he returned to frequently was "scientific self-efficacy"—the belief that Indian students and researchers are capable of participating in and leading world-class scientific endeavours. His call was for institutional environments that nurture this confidence through hands-on learning, real-world problems, and mentorship culture.
5. Public Science, Equity, and Inclusion
   Prof. Das invoked the idea of science as a democratising force, insisting that innovation should not be elite-centric but deeply rooted in solving grassroots problems—be it in agriculture, health, sustainability, or education. He offered examples of how his own undergraduate labs in the US engage students from diverse backgrounds in publishing cutting-edge research.
6. The Role of ODL Institutions like NSOU
   In a powerful nod to NSOU's mission, he underscored the transformative role open universities can play in extending scientific temper, access to research, and participation in global debates to marginalised and non-traditional learners. He urged RDCs to function as gateways, not gatekeepers.
7. Call to Action: India @2047
   Concluding with a future-forward vision, Prof. Das called for cross-sectoral collaboration, a culture of curiosity, and institutional support to enable India's scientific renaissance in time for the nation's centenary of independence.

Relevance of the lecture to NSOU and RDC Vision

Prof. Das's address deeply aligns with NSOU's emerging research strategy—emphasising equity in knowledge production, cross-disciplinary collaboration, and research as a tool for social transformation. His lecture serves as both a blueprint and a rallying cry for RDCs in India to reimagine themselves as crucibles of curiosity and engines of innovation, particularly in the context of open learning.