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THE RESEARCH NEWSLETTER OF MBUST



Advancing Research, Innovation, and Impact at MBUST

Highlights from the July 2026 Issue



Editorial Note

Welcome to the July 2026 edition of MBUST Insights. This month marks another important step in MBUST's journey, with the successful admission interviews for Bachelor's, Master's, and PhD programs, enrollment of a new cohort of students, and the return of our President. Congratulations to the entire MBUST community on these significant milestones.

As MBUST continues to strengthen its research culture, this issue highlights the achievements of our faculty, staff, and students through research publications, academic collaborations, student and faculty spotlights, and institutional accomplishments. We hope these stories not only celebrate our progress but also inspire greater collaboration, innovation, and excellence as we work toward becoming a world-class research university.

*Editor-in-Chief
MBUST Insights*

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- Application Deadline: August, 2026
- Written Exam and Interview: August, 2026

- Selection Notice: August, 2026
- Classes Begin: November 23, 2026

Dr.

Ritu Raj Lamsal, Assistant Professor and Coordinator of the Digital Technology Program at Madan Bhandari University of Science and Technology (MBUST), Chitlang,

has been elevated to the grade of Senior Member of the Institute of Electrical and Electronics Engineers (IEEE). Senior Member is the highest professional grade of IEEE for which a member may apply, requiring extensive experience and reflecting significant professional accomplishment and maturity. Only 10 percent of IEEE's nearly half a million members worldwide have achieved this distinguished rank. The elevation recognizes Dr. Lamsal's substantial contributions to the field of technology and research, and he now joins the elite ranks of IEEE Senior Members.



MBUST Faculty Member Honored with IEEE Senior Member Grade, Recognized as Exceptional Reviewer 2025



In addition to this prestigious elevation, Dr. Lamsal has also been recognized as an Exceptional Reviewer of 2025 for IEEE Access, one of the world's leading open-access scientific journals. Exceptional Reviewers are selected annually based on the quality and value of their reviews, the quantity of articles reviewed, timeliness of report completion, and adherence to IEEE policies.

GRADUATE STUDENT SPOTLIGHT

Ankita Nepal

MAS in Organic Agriculture (OA)

Horticulture Laboratory, Organic Agriculture Program, MBUST

Supervisor: Rameshwar Rai, PhD

Research Interests: Organic Horticulture, Sustainable Fruit Production, Pollination Biology, Postharvest Technology, Value Addition of Horticultural Crops, Climate- Resilient Agriculture



- Authored and co-authored 7 scholarly publications, including 6 Scopus-indexed journal articles and 1 book chapter on kiwifruit production, postharvest management, grafting, value addition, and sustainable horticulture.
- Presented a research poster at the 7th International Conference on Mountains in the Changing World (MoChWo 2025)
- Identified cultivar responses to pollination, harvest timing, and provided recommendations to boost orchard productivity, fruit quality, storage, and processing.

Advancing Sustainable Horticulture and Fruit Production in Nepal

Ankita Nepal is a fourth-semester Master of Applied Science (MAS) student in Organic Agriculture at Madan Bhandari University of Science and Technology (MBUST).

At the Horticulture Laboratory, her research focuses on improving sustainable kiwifruit production through optimized pollination methods, harvest management, and postharvest technologies.

By combining field and lab research, she aims to develop science-based recommendations to improve fruit quality, extend storage, reduce losses, and boost value addition in Nepal's emerging kiwifruit industry.

She chose MBUST for its focus on research-driven education and tackling Nepal's agricultural challenges through science and innovation. It offers a blend of field experiments, lab research, and mentorship to create practical solutions for farmers. She believes evidence-based research can boost productivity, food security, and rural sustainability in Nepal.

Looking ahead, Ankita plans a PhD in Horticultural Science and a career in research. She aims to create evidence-based, climate-resilient technologies to improve farmers' livelihoods, bolster Nepal's horticulture sector, and promote sustainable agricultural growth.

Advice for future MBUST students

Use research not only to advance knowledge but also to solve real-world challenges. Stay committed to scientific excellence while keeping the needs of farmers, climate resilience, and sustainable development at the heart of your work.

Drone Training

Hands-on workshop introduces real-world drone applications

-By Ritu Raj Lamsal, PhD

Assistant Professor

Program Coordinator, Artificial Intelligence and Data Science

The Digital Technology program successfully conducted a hands-on UAV Drone Pilot Workshop, providing students with practical skills in operating uncrewed aerial vehicles. The session, led by program coordinator Dr. Ritu Raj Lamsal, combined field training with theoretical instruction on drone safety and standard operating procedures. Students practiced takeoff, navigation, and landing protocols while learning the critical safety checklists necessary for responsible flight operations. Beyond piloting, the workshop emphasized the growing importance of drones in academic research and professional applications. The primary objective was to prepare students for research across diverse fields including precision agriculture, UAV mapping, disaster response, and GIS mapping. Participants explored how multispectral imaging and remote sensing technologies can capture vital data for environmental monitoring and land-use planning. Dr. Lamsal highlighted the transformative potential of drones in these sectors, encouraging students to integrate UAV technology into their future projects. This training marks a significant step in equipping the next generation of digital technologists with cutting-edge tools to address real-world challenges.



Mycology Without Borders

Japanese expert advances mushroom research at MBUST

-By Saugat R.C.
MAS in Organic Agriculture

Madnan Bhandari University of Science and Technology (MBUST) had the privilege of hosting Dr. Kentaro Hosaka, a renowned mycological taxonomist and curator from Japan, for a ten-day visit (July 14-23, 2026) to Chitlang.

During his stay, Dr. Hosaka engaged closely with students and faculty members, sharing his expertise in mushroom taxonomy, specimen preservation, and field research techniques.

A highlight of the visit was mushroom-foraging in Chitlang forests, with MBUST students and local guide Mr. Ram Bahadur Bal. Dr. Hosaka showed sustainable collection, specimen photographing, tissue sampling for DNA, and preservation in DMSO before drying.

Back in the laboratory, Dr. Hosaka introduced standardized specimen-processing techniques. Mushroom samples were photographed on a black velvet background with a measurement scale, tissue samples were preserved for molecular studies, and specimens were dried at 50°C for long-term storage. He emphasized the importance of maintaining high-quality collections and demonstrated best practices used in international herbaria.

An important part of his work was preparing specimens for preservation and research. Dried collections were organized for institutions in Japan, the National Herbarium and Plant Laboratories in Godawari, Lalitpur, and the MBUST Mushroom Herbarium in Chitlang, enhancing scientific collaboration and resource sharing.



Beyond MBUST, Dr. Hosaka visited the Department of Plant Resources in Thapathali, the National Herbarium and Plant Laboratories in Godawari, NARC's Mushroom Research Unit under the National Plant Pathology Research Center in Khumaltar, and the Natural History Museum of Tribhuvan University in Swayambhunath. He shared insights on specimen preservation and herbarium management, including techniques he refined during his career.

The visit ended with an informal dinner with Mushroom Laboratory students, who presented their research work. Dr. Hosaka praised Nepal's potential for mushroom research and encouraged further exploration of its fungal diversity. His visit was an invaluable learning experience that enhanced MBUST's mycology research efforts.

.....more on page 8



Science Dialogue

Academicians encourage innovation for environmental sustainability

-By Sabina Shrestha, PhD

Associate Professor

Natural Product Laboratory

Forest Biomaterials Science and Engineering

On 24 July, academicians from the Nepal Academy of Science and Technology (NAST), Dr. Deepak Gyawali and Prof. Pramod Kumar Jha, visited Madan Bhandari University of Science and Technology (MBUST) and engaged with faculty members and researchers in discussions on biodiversity, water resources, climate resilience, and innovation.



Dr. Gyawali, a scholar in political economy, science philosophy, and water and energy, stressed that nature is inherently diverse and complex. He emphasized that engineering is an interdisciplinary field integrating information, environment, and society, requiring scientific knowledge to understand natural forces and creatively address real-world challenges.



He emphasized understanding natural forces as key to solving real-world problems. He highlighted integrated water resource management and the need to balance focus on river systems and groundwater recharge. He proposed a framework classifying water into seven types: white (snow), blue (rivers, lakes, precipitation), brown (groundwater percolation), green (soil moisture), grey (domestic wastewater), black (industrial wastewater), and magenta (saline water), stressing each requires careful management.



Both academicians stressed the urgent need for interdisciplinary research on climate change impacts on water, biodiversity, and ecosystems. Their visit reinforced MBUST's dedication to advancing science, technology, and innovation for national development and environmental sustainability.



Prof. Pramod Kumar Jha, a leading Nepalese ecologist, praised MBUST for its focus on research and innovation. He urged the university to leverage Nepal's rich biodiversity by researching disease-resistant and cold-tolerant genes to support sustainable agriculture and environmental resilience.

Learning Together

Joint initiative promotes immersive learning and social impact

-By Prashanna Thapa

Program Manager, Nepal Communiversity

On June 11, 2026, Madan Bhandari University of Science and Technology (MBUST) and Nepal Communiversity formalized an academic partnership through the signing of a Memorandum of Understanding (MoU) to support the Master's Degree in Social Innovation and Entrepreneurship (MSIE) offered by Nepal Communiversity in partnership with Kathmandu University (KU).

The partnership advances experiential, interdisciplinary, and place-based learning in higher education. Students will undertake immersive journeys across Nepal, linking academic inquiry with real-world experience. During their Pahad Trimester at MBUST in Chitlang, classes will be held while they engage with the communities and landscape, exploring local livelihoods, ecological systems, entrepreneurial opportunities, and development challenges. This experience aims to deepen understanding of how innovation, community knowledge, and local realities intersect in addressing social and environmental issues.

The collaboration brings together MBUST's commitment to science, technology, innovation, and place-based development with Nepal Communiversity's pioneering educational model that emphasizes learning through travel, community engagement, and interdisciplinary practice. The two institutions will work together to create meaningful learning experiences, share knowledge and expertise, and strengthen connections between academia and communities.



The MoU reflects a shared vision of transforming higher education into a more collaborative, impactful, and socially responsive endeavour. By combining academic rigour with immersive field experiences, MBUST and Nepal Communiversity aim to nurture a new generation of changemakers equipped to lead innovation and sustainable development in Nepal and beyond.

Research Culture

Distinguished scholars inspire impactful, product-oriented scientific research

-By Saugat R.C.

Mas in Organic Agriculture

The afternoon session of the research interaction program brought together distinguished scholars and researchers to discuss research culture, innovation, and the role of universities in producing solutions for society.

Following a general introduction of participants and their research areas, Prof. Dr. Dinesh Raj Bhuju encouraged researchers to share their research challenges openly. He highlighted MBUST's vision to go beyond academia, focusing on developing products and innovations with real societal impact.

In response to Dr. Bhuju's invitation, Prof. Promod Kumar Jha (Tribhuvan University and Nepal Academy of Science and Technology, a TWAS Academician Fellow) reflected on his 50+ years in biodiversity and ecology. He believes MBUST could become one of Nepal's top universities in a decade. He said a university is judged by its graduates, nurtured by dedicated professors, and that research should be driven by knowledge, not certificates. He emphasized quality publications and patents as research benchmarks and urged students to pursue impactful work.



Prof. Dipak Gyawali, hydropower engineer and political analyst, introduced the society-technology interface, emphasizing that innovations must succeed in society, not just labs. Using Nepal's century-old ropeway tech as an example, he showed efficient tech can fail without supportive policies, awareness, and an ecosystem. He urged researchers to engage with communities, policymakers, and industry, promoting their work beyond academia.

Prof. Gyawali also advocated for healthy scientific skepticism, urging researchers to critically evaluate emerging technologies, including artificial intelligence, through evidence rather than assumptions. His humorous closing remark,

"I came here to confuse you, not to enlighten you,"

reminded participants that questioning established ideas is fundamental to scientific progress.



The discussion covered topics from Sugandhakokila ecology to Nepal's ropeway and startups. It ended with a call for researchers to not just create knowledge but also communicate and market their innovations to benefit society and boost national development.

Advancing Tea Science

Research strengthens protection of Nepali tea germplasm

-By Ritu Raj Lamsal, PhD

Assistant Professor

Program Coordinator, Artificial Intelligence and Data Science

Madan Bhandari University of Science and Technology (MBUST), Chitlang, has formally submitted comprehensive research documents to the National Tea and Coffee Development Board (NTCDB) following the successful completion of the project "Molecular Identification, Authentication, and Chemical Profiling of Nepali Tea Germplasm."

The submissions include two detailed reports, one on molecular identification and another on molecular authentication and chemical profiling, along with a video documentary showcasing the project's methodology and outcomes. The research, coordinated by Dr. Ritu Raj Lamsal and Dr. Kirti Kusum Joshi, was carried out in collaboration with Dr. Sabina Shrestha and Dr. Sarbesh Dangol, with active participation from research students who contributed to laboratory procedures.

The project employed advanced molecular techniques to genetically identify and authenticate unique Nepali tea varieties, highlighting their distinct biochemical profiles. The findings are expected to strengthen the scientific foundation for protecting Nepal's indigenous tea germplasm and enhancing the country's tea industry competitiveness. Dr. Lamsal and his team have expressed readiness to present the findings to NTCDB and discuss their implications for policy and cultivation practices. The university looks forward to further collaboration with the board to translate this research into tangible benefits for tea growers and the broader agricultural sector.



Knowledge Shared, Gratitude Returned

-By Mr. Binod Adhikari
Finance Consultant, MBUST

Two recent graduates of Madan Bhandari University of Science and Technology chose service over leisure. Travelling all the way from Bhaktapur, they rode a motorcycle to Chitlang via the winding and challenging gravel road across the steep slopes of Chandragiri.

It was a Saturday (June 27, 2026), and after a demanding week of work at an IT studio, they had every reason to take a well-deserved break. Instead, they chose to fulfill what they considered their moral responsibility to share the knowledge and skills they had gained from their alma mater, MBUST.

They delivered two seminar presentations on at the Policy and Planning Commission of the Bagmati Provincial Government (PPC-BPG). The first was entitled Orientation on Artificial Intelligence and second Cyber Security Awareness: Protecting Ourselves, Government Information, and Digital Nepal.

The sessions were highly interactive and well received. They confidently addressed questions from a diverse audience that included economists, engineers, administrators, government officers, and the Commission's Secretary, Mr. Hemraj Bhushal.

In appreciation of their presentations, the PPC-BPG awarded the MBUST team an honorarium, amounting to NPR 4,740 after tax deduction. In a remarkable gesture of gratitude, the two graduates donated their entire remuneration to the MBUST Fund.

Their contribution carries special significance for MBUST, Nepal's first and only research university, which continues to grow with the generous support of the public and its well-wishers.



Mr. Prabin Mishra
MAS AI/DS BATCH 2024



Mr. Ishwori Prasad Poudel
MAS AI/DS BATCH 2024

Their dedication reflects the values of MBUST and demonstrates how its graduates are committed not only to advancing knowledge but also to giving back to the institution that shaped their journey.

The Beetle Rumor

A hidden conservation crisis unfolding in our forests

-By Sujan Dawadi, PhD

Insect Ecology and Pest Management (IEPM) Laboratory
Assistant Professor, Organic Agriculture



Every June and July, someone asks me the same question. A cook at the canteen, a farmer taking a break from potato harvesting, a student whispering as if he has a secret,

"Sir, is it true someone pays lakhs for a live bug with big jaws?"

They usually laugh when they say it, because it sounds absurd. But it is not. The stag beetle, a slow and quiet insect that spends most of its life buried inside rotting wood, breaking down dead trees and returning nutrients to the soil, has become one of the most



sought-after collector's items in Japan. A single pair from Nepal can fetch thirty to forty thousand dollars on the international market. Collectors have been caught smuggling hundreds out of the country, and in at least one district, people cut down whole trees just to reach the beetles living inside.

What worries me is not smuggling. It is what happens to the forest when the beetle quietly disappears. These insects are not for decoration. They recycle dead wood, feed the soil, and keep the forest's own renewal running. And yet no one in Nepal is counting them. They hardly appear on conservation lists. There is no baseline, no monitoring, no plans. The forest still looks fine from outside. The hills are still green. But something inside is thinning, and we will only understand what we have lost long after it is gone.

MBUST DT Program Outreach at PABSON Quality Conferences 2026

-By Ritu Raj Lamsal, PhD

Assistant Professor

Program Coordinator, Artificial Intelligence and Data Science

The Digital Technology (DT) Program of Madan Bhandari University of Science and Technology (MBUST) actively participated in the PABSON Quality Conferences 2026 as part of its ongoing outreach initiative.

It was organized by Bhaktapur PABSON and brought together school founders, principals, and teachers. The conference featured a keynote address by the Honorary Chair of AI, MBUST Nepal, Prof. Dr. Suresh Manandhar, titled “Understanding and Navigating AI as Leaders of Education.” Dr. Manandhar traced the growth of artificial intelligence from its historical foundations to modern Generative AI and Large Language Models (LLMs). He highlighted how education leaders and school administrators can thoughtfully apply AI to strengthen decision-making, improve operational efficiency, and enhance teaching and learning processes.

In a complementary hands-on session titled “AI Playground,” Siman Giri and Ashim Babu Shrestha (PhD Student, Digital Technology Program, MBUST, Nepal) trained participants on the safe and practical use of various AI tools, with special focus on NotebookLM. The session covered day-to-day applications including assessment preparation, lecture planning, data visualization, and report creation. Through this outreach, the MBUST DT Program continues to connect academic expertise with the practical needs of school leaders, promoting informed and responsible AI adoption across Nepal’s education sector.



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Follow SporeX on Instagram or Facebook for updates.



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WHY DONATE TO MBUST?

In 2022, the Government of Nepal established Madan Bhandari University of Science and Technology (MBUST) with a bold vision: to create a world-class research university that addresses Nepal's most pressing challenges through science, technology, innovation, and entrepreneurship.

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