

WELCOME TO MBUST Insights



**Welcoming
May 2026
cohort**

Quick Stories

- Welcoming May 2026 Cohort
- Acknowledging Dr. Rajib's Contribution
- Workshop on Nanopore Sequencing, Delay-Tolerant Networks, and Scientific writing
- First Impression of MBUST
- Bayberry, Golden Raspberry, and Mushroom
- Nepal's Water and Ecosystem Dynamics



Acknowledging Dr. Rajib's contribution



Workshops and Collaboration

“

In This Issue

From genomics to climate resilience, this issue highlights MBUST's focus on research excellence and capacity building. Through workshops, lectures, and new research, students and faculty engage with innovative tech and societal challenges. These stories show MBUST's contribution to scientific progress, collaboration, and sustainable development in Nepal.

”

Welcome, May 2026 Cohort!

Welcoming Future Technology Leaders to MBUST Nepal

By Ritu Raj Lamsal

Madan Bhandari University of Science and Technology (MBUST), Nepal, welcomed a new cohort of students for the Master of Applied Science in Artificial Intelligence and Data Science, as part of its Digital Technology Program, for the May 2026 intake. A one-day student orientation program was held on May 18, 2026, to introduce incoming students to the academic environment, program structure, and university facilities.

“The May 2026 intake strengthens MBUST’s digital tech and AI capacity in Nepal and warmly welcomes a new cohort of emerging researchers, innovators, and future leaders to the MBUST community.”

Dr. Ritu Raj Lamsal, Program Coordinator of the Digital Technology program, led the orientation session, which featured speeches by university officials. Dr. Kirti Kusum Joshi, Director of the Institute of Applied Sciences, welcomed attendees, and Prof. Sanjay Khanal followed, explaining academic norms. Dr. Suresh Manandhar, Honorary Chair of AI, offered remarks and guidance on research preparation. Mr. Binod Adhikari discussed logistics, while senior students Mr. Manish Bhattarai and Mr. Rupesh Aryal shared their experiences at MBUST.

Following a tea break, Dr. Ritu Raj Lamsal provided a detailed briefing on the program and semester operations. Dr. Punit Bhattachan, a faculty member in the Digital Technology program, briefed students on the group project in People-Centric AI. Senior students shared their research and motivational insights to inspire the new cohort. After lunch, students explored the university and completed registration and email. The May 2026 intake strengthens MBUST’s digital tech and AI capacity in Nepal.



A new cohort begins its journey in Artificial Intelligence and Data Science at MBUST, May 2026 intake

A Fond Farewell to Dr. Rajib Subba Pandey

Honoring His Legacy at MBUST

By Ritu Raj Lamsal, PhD



Dr. Rajib receiving gifts

“The MBUST community expresses sincere gratitude to Dr. Rajib Subba Pandey for his contributions to the growth and development of the DT Program and wishes him continued success in all his future endeavors.”

The administration, faculty, and students of Madan Bhandari University of Science and Technology (MBUST) bid a farewell to Dr. Rajib Subba Pandey, acknowledging his valuable contributions to the institution and the DT Program. During the farewell gathering, Dr. Subba's tenure at MBUST was warmly praised by both faculty members and students. Speakers highlighted his dedication, leadership, and positive impact on the university community. On behalf of the institution, the Acting President of MBUST, Dr. Dinesh Raj Bhujy, presented an appreciation letter to Dr. Subba, recognizing his service and commitment. Faculty members and students shared their experiences of working with Dr. Subba, expressing gratitude for his guidance and support. The gathering concluded with best wishes for his future endeavors, as everyone present wished him success in all his coming pursuits.



MBUST family gathers warmly to bid farewell to Dr. Rajib Subba Pandey, sharing heartfelt good wishes.

Global Insights, Local Impact

DTN Solutions for Remote Environments

By Ritu Raj Lamsal, PhD

Ritu Raj Lamsal, a Digital Technology program coordinator and faculty member, and his master's student Siddhant Pokhrel attended a 5-day Workshop on Delay-Tolerant Networks (DTN) for Environmental Monitoring, funded by ICTP, Italy, in Nepal (May 11–15, 2025). Thirty-six participants from nine countries joined. DTN, a network architecture that uses store-and-forward, enables reliable data transmission in remote areas, space, and for environmental monitoring, where traditional networks fail. It supports wildlife tracking, glacial lake monitoring, and telemedicine in developing countries. Dr. Lamsal presented his research on DTN applications in tough and challenging terrains. The workshop featured experts such as Vint Cerf, Samo Grasic, and Scott Burleigh and was led by Marco Zennaro of ICTP. It underscored DTN's potential to provide reliable communication in disconnected environments, vital for space and terrestrial applications, and for supporting environmental research and collaboration in developing nations.

The workshop featured experts such as Vint Cerf, Samo Grasic, and Scott Burleigh and was led by Marco Zennaro of ICTP. It underscored DTN's potential to provide reliable communication in disconnected environments, vital for space and terrestrial applications, and for supporting environmental research and collaboration in developing nations.

“ MBUST enhances mentorship, global partnerships, and capacity in digital tech and environmental research through workshops and collaborative platforms. ”



Academic interaction and collaborative learning during the ICTP-supported DTN workshop

Excited for the Journey Ahead

First Impressions from the May 2026 Intake

By Nawaraj Luitel

I believe that science and technology are essential for the development of any nation. Starting my journey at Madan Bhandari University of Science and Technology (MBUST) as a Master's by Research student in Artificial Intelligence under the Digital Technology Department has been a truly transformative academic experience. From the very beginning, MBUST has felt distinct from traditional universities in Nepal due to its research-oriented, innovation-driven, and future-focused environment.

As a student, one of the first things I noticed was the peaceful atmosphere of the Chitlang campus. Away from the noise and distractions of the city, the university provides a calm space where we can focus entirely on research, learning, collaboration, and creativity. The natural surroundings make the rigorous academic journey feel incredibly refreshing and inspiring.

What makes MBUST even more special is its strong emphasis on practical and interdisciplinary learning. The university does not limit us to theoretical knowledge; instead, it actively encourages students to solve real-world problems through targeted research and hands-on innovation. As a student of Artificial Intelligence, I am excited to work in an environment where emerging technologies, data science, and advanced digital systems are treated as vital tools for national progress. This unique ecosystem allows us to explore how intelligent systems can be applied directly to solve local challenges in sectors such as agriculture, healthcare, and infrastructure.



MBUST

Since MBUST is a rapidly growing institution, being a student here also means becoming an active part of its development journey. We belong to the foundational cohorts helping to shape the culture, research standards, and future identity of the university. This positions us with both unique opportunities and significant responsibilities. It allows for closer, more meaningful interaction with faculty members, deep involvement in cutting-edge research, and the opportunity to help build a robust academic ecosystem from the ground up.

For me, joining MBUST is not just about pursuing a degree. It is about becoming part of a pioneering academic movement in Nepal, one that deeply values research, innovation, and technological advancement. I firmly believe MBUST has the potential to become a premier center for science and technology in our country, and I am incredibly proud to begin this journey as a member of the Digital Technology Department in the MAS in AI program.

Building Genomic Research Capacity in Nepal

Workshop on Oxford Nanopore Sequencing Technologies and Applications

By Birendra Mahara

Recent advances in genome sequencing technologies have transformed modern biological research and agricultural innovation. Plant genome sequencing, in particular, has become indispensable for accelerating crop improvement, strengthening global food security, and developing climate-resilient agricultural systems. By decoding genomic information, researchers can rapidly identify genes associated with drought tolerance, disease resistance, stress adaptation, and enhanced productivity. Such molecular insights provide the scientific foundation for precision breeding, sustainable agriculture, and next-generation crop improvement strategies.

Among emerging sequencing technologies, Oxford Nanopore sequencing has gained considerable attention due to its portability, real-time data generation, scalability, and long-read sequencing capabilities. Technology enables comprehensive genomic analysis of DNA and RNA, facilitating applications ranging from pathogen detection and genome assembly to biodiversity assessment and molecular diagnostics.

With the vision of establishing itself as a world-class research and innovation center, the Genomics and Tissue Culture Laboratory (GATC Lab) acquired the MinION Mk1D Oxford Nanopore sequencing platform through the support of a UNESCO–TWAS grant. Guided by its commitment to teaching, collaborative learning, and research extension, GATC Lab organized a two-day workshop entitled “Nanopore Sequencing Using the MinION Mk1D Platform” on May 16–17, 2026, at the Genomics and Tissue Culture Laboratories, Madan Bhandari University of Science and Technology (MBUST), Chitlang, Makwanpur.

The workshop was conducted with technical and research support from the Center for Molecular Dynamics Nepal (CMDN–Intrepid Nepal) and the Nepal Agricultural Research Council (NARC). CMDN contributed technical expertise and sequencing-related materials, while NARC supported the program through research material contributions. The workshop was designed to provide intensive hands-on exposure to nanopore sequencing technologies while promoting collaborative scientific learning among students, early-career researchers, and academic professionals.



Dr. Sarbesh, PI of GATC Lab, hosting the session

Practical Implications

Hands-on training in nanopore sequencing equips researchers with modern genomic tools that can accelerate crop improvement, pest detection, biodiversity studies, and climate-resilient agricultural research in Nepal.

Scientific Training Sessions and Workshop Activities:

Day 1: Introduction to Nanopore Sequencing and Wet-Lab Training

The workshop commenced at 9:00 AM with participant registration followed by tea and refreshments. The formal session was hosted by Dr. Sarbesh Das Dangol. The Acting President of MBUST, Dr. Dinesh Bhujju, warmly welcomed all participants and emphasized the importance of advanced genomic technologies in modern biological research and agricultural innovation.



Dr. Dinesh welcoming the participants

The theoretical session began as scheduled at GIV 314 Meeting Hall with a lecture entitled "Introduction to Oxford Nanopore Sequencing Technology." Participants were introduced to the fundamentals, principles, and applications of nanopore sequencing technology. The session provided valuable background knowledge regarding sequencing workflows, nanopore chemistry, and the significance of real-time sequencing.

Following lunch, participants moved to GATC II (GIV 108) for the laboratory session, where they learned the procedures for sample preparation for sequencing. This practical session was highly engaging and provided all participants with hands-on experience in preparing sequencing libraries and handling laboratory equipment. The session was informative, interactive, and particularly valuable for participants who were new to sequencing technologies.

After refreshments, the next session focused on operating the sequencing device and initiating sequencing runs using the MinION Mk1D platform. Participants also learned the initial steps involved in data acquisition and monitoring sequencing progress. The first day concluded with an informal discussion and interaction session among participants, organizers, and facilitators.



Miss Roji Raut, the resource person delivering lectures at the session

Day 2: Nanopore Data Analysis and Research Collaboration

The second day began with registration and tea at the same venue. Participants then proceeded to GIV 314 Meeting Hall for a theoretical session on “Overview of Nanopore Data Analysis.” This session introduced participants to the fundamentals of sequencing data processing, basecalling, quality assessment, and downstream bioinformatics analysis.

After lunch, participants engaged in a practical data analysis session where they learned how to process and analyze sequencing data. Facilitators also assisted participants in troubleshooting common problems encountered during sequencing and data analysis. The interactive nature of the session enabled participants to gain confidence in handling nanopore sequencing datasets.

Following refreshments, volunteers and organizers guided participants on a tour of different laboratories and facilities within the university. This provided participants with an opportunity to explore the research environment and infrastructure available at MBUST.

At approximately 4:00 PM, the workshop concluded with a closing remarks and certificate distribution ceremony. During the photo session, organizers, participants, and resource persons captured group photographs to commemorate the successful completion of the training program. The workshop ended with expressions of gratitude to all collaborators, volunteers, organizers, facilitators, and participants who contributed to the success of the event.

We, the organizers expressed their hope of conducting similar workshops in the future and wished all participants success in their academic and professional journeys.



Learning about flow cell and how to load samples in it



Participants in wet lab



Preparation of sample for sequencing



Incubating the samples in PCR



Sample loading in the flow cell

Outcomes and Significance

The workshop successfully introduced participants to both theoretical and practical aspects of nanopore sequencing technology. Through interactive lectures, laboratory demonstrations, and computational data analysis sessions, participants developed foundational skills in sample preparation, sequencing operation, and nanopore data interpretation. The program also strengthened institutional collaboration among MBUST, CMDN–Intrepid Nepal, and NARC, highlighting the growing importance of interdisciplinary partnerships in advancing genomic research in Nepal. The successful implementation of this workshop reflects the increasing research capacity of Nepalese institutions in the field of genomics and molecular biology. Such initiatives are expected to contribute significantly to future research in agriculture, plant pathology, biodiversity, and biotechnology.



Group photo with organizers, participants, and resource persons.

Acknowledgements

We sincerely acknowledge the support provided by the Ms. Roji Raut and team and Center for Molecular Dynamics Nepal (CMDN–Intrepid Nepal), the Nepal Agricultural Research Council (NARC), UNESCO–TWAS, and Madan Bhandari University of Science and Technology (MBUST). Special thanks are extended to all resource people, facilitators, volunteers, and participants whose active involvement made the workshop successful and impactful.

Advancing Scientific Communication

A Three Day Workshop on Academic Writing and Publishing

By Sadikshya Chaulagain and Nawaraj Pandey

The Wood Science Laboratory and Forest Biomaterial Science and Engineering (FBMSE) Program of Madan Bhandari University of Science and Technology (MBUST), Chitlang, Thaha Municipality, successfully organized a three-day workshop on Scientific Writing from May 25–27, 2026. The program was supported by the University Grants Commission (UGC), Sanothimi, Bhaktapur.

Enhancing researchers' skills in Scientific writing, manuscript preparation, referencing, and scholarly publication

A total of 20 participants from different institutions actively participated in the workshop. The workshop was designed to strengthen the scientific communication and academic writing skills of researchers, lecturers, and students. Key sessions focused on scientific writing principles, manuscript preparation, referencing, citation management, publication strategies, and effective communication of research findings. Experienced resource persons from relevant academic and research institutions were invited to facilitate the sessions and provide practical guidance to participants. In addition to the technical sessions, participants had the opportunity to share their research ideas and experiences from their respective fields. These discussions encouraged interdisciplinary learning, collaboration, and knowledge exchange among researchers and academicians.

Throughout the three days, participants demonstrated remarkable enthusiasm and engagement. Interactive exercises, group discussions, and hands-on writing activities contributed to a productive learning environment. The workshop received highly positive feedback from participants, who appreciated the relevance of the topics, the expertise of the resource persons, and the opportunity to improve their scientific writing and publication skills. The successful completion of the workshop reflects MBUST's continued commitment to promoting research excellence and enhancing academic capacity. The organizers expressed their gratitude to the University Grants Commission, resource persons, participating institutions, and all attendees for their valuable contributions in making the event a success.



Group photo with organizers, participants, and resource persons.

(Continued from Page 10)



Interactions during scientific writing workshop

Wild Berries, New Opportunities

Exploring the Potential of Wild Berries in Chitlang, Nepal

By Sadikshya Chaulagain and Birendra Mahara

Nestled within the scenic hills of Makwanpur District, Chitlang is widely recognized for its historic Newar settlement, panoramic landscapes, traditional homestays, and proximity to the beautiful Indrasarovar (Kulekhani) Lake. Located in this naturally rich region is the Madan Bhandari University of Science and Technology (MBUST), an emerging center for scientific research and innovation in Nepal. Beyond its cultural and geographical significance, Chitlang is remarkably rich in biodiversity, particularly in wild fruits, medicinal herbs, and native plant species that remain scientifically underexplored.



Ainselu (ऐँसेलु)



Kaafal (काफल)

During the stay in Chitlang, we observed the abundant presence of two nutritionally and medicinally important wild Himalayan berries: Bayberry (*Myrica esculenta*), locally known as Kaafal (काफल), and Golden Himalayan Raspberry (*Rubus ellipticus*), commonly called Ainselu (ऐँसेलु). Kaafal is a small, deep red berry with a distinctive sweet, tangy, and mildly acidic flavor that has long been valued in traditional Himalayan communities. Rich in antioxidants, the fruit and other parts of the plant have traditionally been used in Ayurvedic medicine for treating coughs, chronic bronchitis, fever, anemia, ulcers, diarrhea, and throat-related disorders. The bark is also used for producing natural dyes, while the foliage serves as livestock fodder. Similarly, Ainselu is a bright yellow-to-golden berry that grows abundantly on thorny shrubs across the hills of Chitlang. The fruit is rich in vitamin C, phenolic compounds, beta-carotene, dietary fiber, and essential minerals such as potassium, calcium, and magnesium. In traditional Himalayan and Tibetan medicine, it has been used to relieve sore throats, coughs, and fever, while extracts from its roots and bark are regarded as medicinal tonics.

Despite their nutritional, medicinal, and ecological importance, wild Himalayan berries are largely neglected in Nepalese research and development. Their rich bioactive compounds and adaptation to Himalayan environments make them ideal for studies in phytochemistry, biotech, nutrigenomics, pharmacology, and conservation biology. Exploring these species could lead to nutraceuticals, herbal medicines, antioxidant drinks, natural flavorings, and functional foods, while genomic and metabolomic techniques may reveal valuable bioactive compounds and genetic traits. The biodiversity of Chitlang offers not only natural beauty and cultural heritage but also a future frontier for interdisciplinary research and sustainable bioresource development in Nepal.



Eco-Hydrology in a Changing Climate

Understanding Nepal's Water and Ecosystem Dynamics

By Sudip Pandey and Srijana Dangi

On 29 May 2026, students and faculty members participated in an insightful academic session delivered by Dr. Binod Baniya (PhD & Post-Doctoral Researcher), Assistant Professor of Environmental Science, Tribhuvan University. The lecture, entitled "Eco-Hydrology: A New Frontier in Water-Ecosystem Response to Climate Change in Nepal," highlighted the interrelationship between hydrological processes and ecosystem dynamics in the context of climate change. Dr. Baniya discussed watershed and catchment management, ecohydrological modeling, evapotranspiration, remote sensing applications, ecosystem service valuation, phenology, carbon and water cycles, and the role of vegetation in regulating water resources. Particular emphasis was placed on climate-change impacts in Nepal, including changing precipitation patterns, spring depletion, urban flooding, green infrastructure solutions, and the use of satellite-based observations for environmental monitoring and prediction. The session provided participants with valuable insights into contemporary environmental research and sustainable water-resource management, stimulating meaningful discussions on climate resilience and future research opportunities.



Academic session by Dr. Binod

Nanopore Sequencing at the GATC Lab

MK1D Device and Applications

By Aashish Adhikari

Nanopore sequencing technology is a third-generation sequencing technology that relies on the detection of DNA bases via current disruptions that occur due to the passing of DNA oligomers across a protein-nanopore channel. The identification of bases hereby occurs from variable magnitude of current fluctuations that the bases offer upon the patch-clamp amplifier at the constriction (base) site of the pore, which offers signal pass-down along the chip, which holds the information, including the nature of bases and the read length for a given sample.

The passing of bases is facilitated by the passing of ionic current with negative charges around the DNA bases offered by the cis and trans sites located on either side of the nanopores. The negative charge influences movement across the pores, facilitated by tether proteins that tag onto the strands directed by motor proteins to finally pull them towards the pore and generate a continuous read.

This technology is a relatively long-read platform compared to Illumina and Ion Torrent, which rely on short reads. The short-read sequencer derives amplicons from long DNA, which is end-repaired, attached with an adapter, and fluorescent bases for detection. Nanopore technology saves time and energy by skipping SBS detection and typically does not fragment DNA or require complex reattachment, making it energy-efficient and economical.

The workflow for nanopore sequencing is flexible. The rapid barcoding kit, suitable for various applications, can barcode and pool samples after PCR. Ligation sequencing, used for plant DNA with good concentration, involves longer preparation but usually does not need PCR.

At GATC Lab, a nanopore sequencing device was installed with support from the UNESCO-TWAS grant awarded to Dr. Sarbesh Das Dangol. It will be used for plant genome sequencing, including CRISPR Cas9 projects to identify knock-out plants, fungal species causing rice and millet blast diseases, and genomic studies in tea and millet, such as species identification and vector development. Oxford Nanopore offers kits for microbial amplicon sequencing, using barcoding and primers like 16s and ITS. Our GATC lab has Ligation Sequencing and Rapid Barcoding Kits, which include control samples, priming kits, and flow cell wash kits for sequencing operations.

Oxford Nanopore also provides specific kits for microbial amplicon sequencing, with facilitation of both bacterial and fungal samples with unique barcoding and 16s and ITS-based primers being used for this purpose, like the native barcoding kit, cDNA-PCR kit for RNA sequencing, native RNA sequencing kits, and so on. The kits aside, Ligation Sequencing Kit-LSK and Rapid Barcoding Kit-RBK that we have at GATC lab include Control Expansion kit with a control sample of DNA to check sequencing run contamination, Priming Kit for priming of pores prior to sample loading, and Flow Cell wash kit for washing up a used flow cell and storing it until the next sequencing run.

Gathering Relict Mushrooms

Jumla–Mugu Mushroom Study Expedition 2026

By Atmaz Kumar Shrestha, Suraj Chaudhary, and Nitesh Khatiwada

Researchers from the MBUST's Mushroom Laboratory conducted an extensive field survey in Jumla and Mugu districts during 29 April to 6 May 2026, targeting Morel mushrooms (*Morchella conica*, *M. esculenta*) and several other local species. The team wild specimens and also acquired dried mushroom samples from local residents. Collected samples will be used for our ongoing studies in taxonomy, cultivation trials, and bioactive compound analysis for conservation and sustainable-use initiatives.



Morel Mushrooms Morechella spp. collection from Jumla and Mugu



Study team (from the left: Suraj Chaudhary, Nitesh Khatiwada and Atmaz Kumar Shrestha) gathered along the serene shores of Rara Lake in Mugu District, near the beautiful Millichaur area.

MBUST Hosts Seismic Leaders

MBUST Welcomes Prof. Kimiro Meguro and Dr. Chaitanya Gadagamma

By Kishor Timsina

Two international experts in earthquake mitigation visited MBUST Chitlang to share low-cost retrofitting techniques, demonstrate simulation tools, and plan collaborative research and capacity-building activities.

Event Snapshot

- Date & Venue: MBUST Chitlang campus.
- Hosts: Sustainable and Resilient Infrastructure (SRI) program, MBUST; Program Coordinator Prof. Dr. Kishor Timsina.
- Format: Keynote remarks, laboratory demonstrations, group lunch, and roundtable planning.
- Attendees: MBUST faculty and students; visiting delegations from The University of Tokyo and Asian Institute of Technology (AIT).

Key Speakers

Prof. Dr. Kimiro Meguro — The University of Tokyo

- Role: Dean, Interfaculty Initiative in Information Studies (III) and GSII.
- Expertise: Urban earthquake disaster mitigation, numerical structural simulation (Applied Element Method), evacuation and behavior modeling, and disaster information systems (VR, GIS, RS).

Dr. Chaitanya Krishna Gadagamma — Asian Institute of Technology

- Role: Faculty, School of Engineering and Technology; Head of the Disaster Management Process Engineering Laboratory.
- Expertise: Seismic safety and resilience, building damage analysis, low-cost retrofitting for unreinforced masonry, and ground motion simulation.



From left: Er. Nilkantha Regmi (MAS Scholar); Prof. Dr. Ramesh Guragain, Deputy Executive Director, NSET; Daughter of Prof. Dr. Kimiro Meguro; Prof. Dr. Kimiro Meguro; Prof. Dr. Kishor Timsina; Prof. Dr. Chaitanya Krishna Gadagamma.

MBUST at Asia's Earthquake Forum

MBUST Delegates Participate in 9ACEE Kathmandu

By Aayush Niraula and Kishor Timsina

4–6 May 2026 | Kathmandu, Nepal

Students from MBUST's Sustainable and Resilient Infrastructure (SRI) program, accompanied by Program Coordinator Asst. Prof. Dr. Kishor Timsina, participated in the 9th Asia Conference on Earthquake Engineering (9ACEE) held in Kathmandu. The conference provided an important platform for presenting graduate research, engaging with leading experts, and gaining exposure to the latest developments in earthquake engineering across Asia.

Research Presentations

MBUST students presented their ongoing research to an international audience of academics, engineers, and practitioners.

Er. Nilkantha Regmi presented his research on optimizing the size and placement of doors and windows in traditional stone masonry homestays. The study aims to improve seismic performance while maintaining occupant comfort and preserving vernacular architectural character. The research incorporates numerical modeling, material calibration, and optimization techniques using OpenSeesPy and GMSH to identify opening configurations that satisfy both structural and functional requirements.

Er. Mukesh Maharjan presented an analytical and experimental investigation of confined block masonry walls, focusing on the seismic performance of Autoclaved Aerated Concrete (AAC) and concrete hollow block infill systems. His study combined laboratory testing with numerical analyses using AEM, FEM, and RBSM approaches. Findings highlighted the enhanced ductility and lateral resistance of AAC infill systems and emphasized the importance of accounting for infill stiffness in structural design.



Er. Nilkantha Regmi presenting his graduate research



Er. Mukesh Maharjan presenting his research

Learning and Professional Exposure

During the conference, delegates attended keynote lectures and technical sessions covering topics such as performance-based design, structural health monitoring, and heritage retrofitting. They also participated in a field visit to Bhaktapur Durbar Square, where they observed post-earthquake restoration efforts and discussed the challenges of preserving heritage structures following the 2015 Gorkha Earthquake.

The student presenters received valuable feedback from senior researchers and reviewers, which will support further refinement of their experimental and numerical research.



Prof. Kimiro Meguro, pioneer of the Applied Element Method, with his former student Asst. Prof. Dr. Kishor Timsina and the MBUST research team after presentations at the conference.



Delegation photo: Prof. Chaitanya Krishna Gadagamma, Asst. Prof. Dr. Kishor Timsina, and MBUST students following presentations at the 9th Asia Conference on Earthquake Engineering.

Networking and Collaboration

The conference provided opportunities to connect with leading academics, practicing engineers, and members of the ACEE advisory and technical committees. These interactions fostered professional networking, mentorship opportunities, and potential future collaborations, further strengthening MBUST's engagement with the regional earthquake engineering community.

Research Partnership Opportunity

Cost-Effective Housing Technologies for Nepal's Mid-Hill Communities

By Aayush Niraula

The Department of Urban Development and Building Construction (DUDBC) and Madan Bhandari University of Science and Technology (MBUST) are conducting a research project on cost-effective, locally appropriate housing technologies in Chitlang Valley. The study focuses on improving the seismic safety of traditional stone masonry houses while preserving their cultural and architectural heritage.

Project Overview

Title: Conduct study and research on cost-effective local housing technologies and construction in collaboration with the study / research institute.

Location: Chitlang, Thaha Municipality-9, Bagmati Province.

Duration: 4 months (16 weeks) from commencement.

Study team: Kirti Kusum Joshi, PhD; Kishor Timsina, PhD; Aayush Niraula; Dipu Chapagain; Rupesh Shakya; Nilkantha Regmi; Sapana Prajapati; Bibek Basnet.

Objectives:

- Preserve vernacular architecture while improving safety.
- Improve seismic performance of stone masonry in mud mortar (SMMM) houses.
- Integrate traditional and modern knowledge to produce practical, culturally sensitive solutions.
- Develop affordable, easy-to-use guidance for local masons and communities.
- Generate area-specific recommendations with Chitlang Valley as the primary case study.



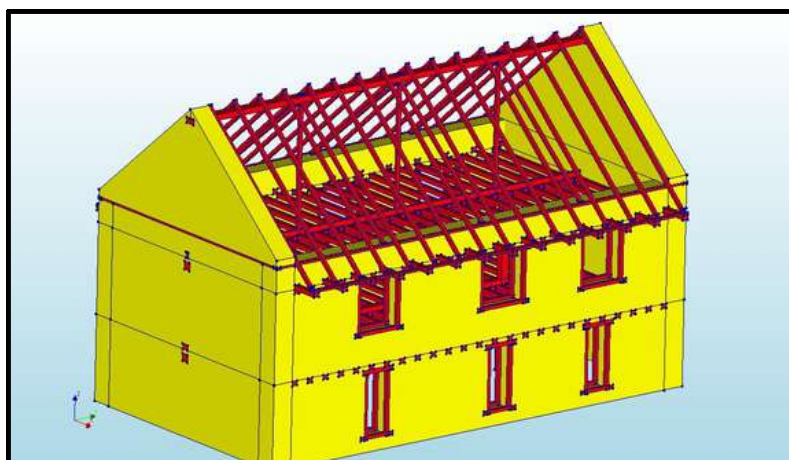
Grid Map of the Survey Area

Methodology (high level)

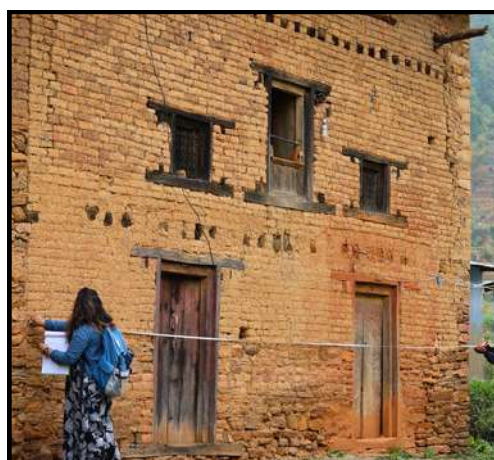
- Systematic field mapping: 300 m × 300 m grid coverage of Chitlang Valley; GPS mapping and photographic documentation.
- Mixed methods: Structured questionnaires, interviews with artisans and elders, non-destructive material testing, and component-level surveys.
- Numerical modelling: Detailed micro-modelling in DIANA FEA to simulate nonlinear masonry behaviour and identify failure mechanisms.
- Qualitative synthesis: Thematic analysis of indigenous practices to identify revival opportunities.

Key Preliminary Findings

- Dominant failure modes: Out-of-plane wall collapse, corner separation, and cracking near openings.
- Positive role of timber bands: Continuous timber bands and regular maintenance correlate with markedly better performance.
- Common weaknesses: Lack of cross walls, poor band lapping/connection, and unsecured timber pegs.



Diana FEA Model of a Stone Masonry Building under study



Measurement carried out during Field Survey at Chitlang.

Expected Outputs & Impact

- Design and detailing guidelines tailored to SMMM construction.
- Affordable construction manuals for local masons emphasizing self-construction and low-cost retrofits.
- Policy recommendations for DUDBC to integrate indigenous techniques with NBC provisions.
- Community capacity building through short courses, demonstrations, and field pilots.

Next Steps & Opportunities

- Field surveys and representative numerical analyses to be completed in the coming weeks.
- Pilot rehabilitation trials and cost analyses on a plinth-area basis.
- Engagement opportunities for students and local masons: hands-on training, documentation, and participation in pilot retrofits.

Interested in contributing or learning more? Contact the DUDBC Housing Section or the Sustainable and Resilient Infrastructure (SRI) Program at MBUST

Learning by Doing

Mushroom Survey Teams Explore Himalayan Ecosystems

By Saugat R.C., Rukshana Thapa, Ankita Nepal, and Manushi Sigdel

As part of the Ministry of Education, Science and Technology (MoEST)-funded Mushroom Laboratory Project led by Principal Investigator Dr. Bhushan Shrestha, two field survey teams from the MBUST Mushroom Laboratory recently conducted extensive mushroom exploration expeditions in the ecologically rich regions of Ghandruk–Ghorepani and Panchpokhari.

The primary objective of these surveys was to document, collect, and study wild edible and medicinal mushrooms found in these diverse mountain ecosystems. During the fieldwork, numerous mushroom specimens were photographed, recorded, and collected for further scientific investigation and identification.

For the Panchpokhari survey, Ms. Rukshana Thapa and Ms. Ankita Nepal were assigned to explore and document the fungal diversity of the region. Simultaneously, the Ghandruk–Ghorepani expedition was carried out by Mr. Saugat R.C. and Ms. Manushi Sigdel, who surveyed various forest habitats in search of valuable mushroom species.

The five-day expeditions were filled with exciting trekking routes, challenging weather conditions, and rewarding scientific discoveries. Beyond specimen collection, the surveys provided invaluable hands-on learning experiences in field mycology, biodiversity documentation, and scientific research practices.

These field activities exemplify MBUST's commitment to experiential education, where students and researchers engage directly with nature and science. The surveys not only contributed valuable research materials for the ongoing project but also demonstrated the principle of "learning by doing" at its best.

The MBUST Mushroom Laboratory looks forward to further analysis of the collected specimens and continued exploration of Nepal's rich fungal diversity.



Glimpses of the Field Visit



Glimpses of the Field Visit



Glimpses of the Field Visit

From Graduation to Innovation

Exploring careers in entrepreneurship, research, and the AI era

By Sapana Prajapati

On May 14, an informative session on “Entrepreneurship and Scientific Research: Career Pathways After Graduation” was held at MBUST, Chitlang. The session was delivered by Dr. Sojen Pradhan, Senior Lecturer at the University of Technology Sydney (UTS), and was followed by an interactive discussion with participating students.

A major focus of the discussion was the growing influence of Artificial Intelligence (AI) and digital technologies across modern industries. Dr. Pradhan highlighted both the benefits and challenges associated with AI, particularly its potential impact on younger generations. While AI has significantly improved efficiency and simplified many tasks, he noted that excessive reliance on such technologies may weaken critical thinking, creativity, and independent problem-solving abilities. Students were encouraged to use AI responsibly as a supportive tool while continuously strengthening their own analytical and cognitive skills. The session also explored the influential role of social media in shaping products, businesses, and public perception. Dr. Pradhan discussed how digital platforms can significantly affect consumer behavior and market trends, while cautioning students about the challenges of distinguishing between reliable and misleading information in the online environment.

The session inspired students to think beyond conventional career paths, embrace innovation, and remain mindful of the risks associated with overdependence on digital technologies in an increasingly AI-driven world. The session provided valuable insights into career opportunities available to graduates in the fields of entrepreneurship and scientific research.

Dr. Max Hendriks, a retired professor at UTS also joined the session.



A Group Photo

Editorial Team

Patron: Prof. Dr. Rajendra Dhoj Joshi

Advisors: Prof. Dr. Dinesh Raj Bhuj, Assoc. Prof. Padma Sunder Joshi,
Prof. Dr. Sanjay Nath Khanal and Dr. Kirti Kusum Joshi

Editor-In-Chief: Dr. Sujan Dawadi

Associate Editors: Dr. Bhushan Shrestha, Dr. Sabina Shrestha, Dr. Ritu Raj Lamsal, and
Dr. Kishor Timsina

Section Editors: Dr. Sarbesh Das Dangol, Dr. Sabina Shrestha, Dr. Bhushan Shrestha, Dr.
Anupama Shrestha, and Mr. Saugat R.C.

Any Questions?

info@mbust.edu.np

9840088016, 9849848053

Chitlang, Thaha Municipality-9,
Makawanpur,
Bagmati Province, Nepal

www.mbust.edu.np/newsletter

Support MBUST for a Prosperous and Just Nepal!

Join our campaign by donating to MBUST.

Please enter your name, email, and mobile in the remarks section.

Every Rupee or Dollar Counts!

Your support makes a difference!

We Accept

fone pay

नेपाल राष्ट्र बैंकबाट अनुमति प्राप्त



MADAN BHANDARI UNIVERSITY OF SCIENCE AND
TECHNOLOGY ENDOWMENT FUND
Terminal : 2222380020294553

Bank Branch : CHITLANG BRANCH

1 Open your Fonepay Member Mobile Banking App/ Digital Wallet / UnionPay

2 Scan this code, confirm the payment details and make quick payment



नेपाल बैंक लिमिटेड
NEPAL BANK LIMITED
पुनर्मागः समुदायः

Phone no : 4247999
ext 320/347
Email : payment@nbl.com.np