MADAN BHANDARI UNIVERSITY OF SCIENCE AND TECHNOLOGY

Madan Bhandari University of Science and Technology
Chitlang, Thaha Municipality Ward 9, Bagmati Province, Nepal

Invitation of Applications for Admission to Master of Applied Science in Artificial Intelligence and Master of Applied Science in Data Science

March 25, 2025

1. Introduction

Madan Bhandari University of Science and Technology (MBUST) was established through the promulgation of the Madan Bhandari University of Science and Technology Act, 2079 (2022 AD) on August 3, 2022. This Act grants extensive autonomy to the University creating an enabling environment for developing MBUST into a world-class research-oriented university. MBUST holds the promise of making a direct contribution to the economic development of the country through the creation of new knowledge and technology, which should enhance the competitiveness of the country's economy.

The MBUST ***vision is to be a world-class university*** and the ***mission is to build prosperous and just Nepal***. MBUST is committed to provide world-class education by attracting talented and committed students and academic staff, and providing a conducive environment for research and development activities focused at solving real-life problems of the industry using the state-of-the-art knowledge and technology.

2. Academic Programs

The teaching and research activities of the University are guided by the real-life problems of the industry. Teaching and research programs of the University are delivered through the Institutes engaged in research related to specific economic sectors. The students will pursue their study in close collaboration with related industries and are expected to develop a new technology for collaborating industrial partners. This approach is designed to produce graduates who are "job creators" rather than "job seekers".

MBUST has been offering PhD and Master of Applied Science (MAS) programs in in Organic Agriculture, Forest Biomaterials Science and Engineering, and MAS programs in Artificial Intelligence, Data Science and Sustainable and Resilient Infrastructure.

Academic programs to be offered in May 2025 session are MAS in Artificial Intelligence and MAS in Data Science.

Program structure (Attachment 1) and list of resource persons (Attachment 2) are appended to this notice. Please visit www.mbust.edu.np for more details.

3. Programs, Intake and Financial Support

Program	Total intake	Tuition fee waiver and scholarship	Tuition fee waiver only			
			100%	75%	50%	25%
MAS in Artificial Intelligence	Up to 16	For up to 2	For up to 2 additional students	For up to 2 additional students	For up to 2 additional students	For up to 8 additional students
MAS in Data Science	Up to 16	For up to 2	For up to 2 additional students	For up to 2 additional students	For up to 2 additional students	For up to 8 additional students

This call is for the remaining seats. The financial assistance will depend upon the number of seats available at the time of admission. The level of financial assistance available to each selected candidate will be notified in the admission list.

Monthly scholarship of **Rs. 12,000** may be provided to Master's students based on scholastic performance for two years subject to *availability of resources* and *meeting the prescribed performance threshold as evident from the semester-wise evaluation*. Students getting fee waiver and scholarships are required to be engaged in University's research and other activities.

For getting tuition fee waivers and scholarships, Master's students will have to commit to be employed or self-employed in Nepal or serving at MBUST or institutions placed by the MBUST for at least two years. The duration of service will be half of the above for students getting only the fee waiver independent of the degree of the fee waiver.

If recipients of tuition fee waiver and scholarship leave the study before completion they will have to reimburse the total amount of scholarship received and pay tuition fees for the whole course. **The tuition fees for one year is Rs.150,000 for Master's programs.**

To encourage only committed students to get admitted and handle the University property with care, the following non-tuition fees will be charged: registration fee of Rs.25,000; refundable deposit of Rs.50,000, which will be refunded on completion of the study; and refundable security deposit of Rs.25,000 towards the compensation for possible damages to the University property associated with the negligence. In addition, a transportation charge will apply for students using office shuttle service to and from Chitlang.

4. Admission Schedule

Open till all seats are filled	Call for Applications
Shortlisted candidates will be notified through email and phone call	Shortlist publication, written examinations and interview

Selected candidates will be notified through email and phone call May 16, 2025	Publication of admission list and admission period Orientation, course registration, and start of instruction

5. Eligibility

- 4-year Bachelor's in science/engineering/technology or other relevant fields from recognized universities with CGPA of 2.75 out of 4.0 (or international equivalent).

6. Application Submission

Online application form is available at https://mbust.bbnepal.com/ and MBUST website http://mbust.edu.np. Applications must be submitted online. Applications are open to all nationalities. Applications in hard copies or scanned copies shall not be entertained.

Bank details to deposit application fee:

MADAN BHANDARI UNIVERSITY OF SCIENCE AND TECHNOLOGY

A/C No. 01800106701870000001

Nepal Bank Limited

Gabahal Branch, Lalitpur

In case of difficulties in applying online, please contact:

Name: Saroj Joshi

Email Id: jsaroj284@gmail.com

Contact number: 9868795646

For queries related to programs please contact:

Name: Dr. Bhuwwan Bhattarai, Assistant Professor

Mobile: 9842000390

Email: bhuwan.bhattarai@mbust.edu.np

7. Documents and Information to be Submitted

Mandatory documents

1. Academic transcripts

   a. Bachelor's level
   b. Secondary school transcript (grade 12)
   c. Secondary Education Examination transcript (grade 10)
2. Research statement (Attachment 3)
3. Personal statement (Attachment 4)
4. Citizenship certificate/Passport
5. CV
6. Bank voucher/evidence of the deposition of application fee of Rs. 500

Optional documents

1. Publication list
2. Experience certificates
3. Additional transcripts
4. Other documents (not more than five)

8. Selection of Students

Criteria for Selection

The students will be selected based on the following criteria.

Criteria	Weightage, %
Transcripts	20
Research statement	10
Personal statement	15
Special skills	10
References	10
Essay writing	10
Interview	25
Total	**100**

Students should submit the names of three referees who can provide the firsthand reference on the students. The students should name only those referees who agree to be interviewed by the University.

Students are encouraged to submit documents showing special achievements/skills which could enhance the chances of their success in the studies.

Students with publication records in peer-reviewed journals and conferences will have an advantage in the selection. Therefore, students are encouraged to provide a list of publications (Attachment 5).

Essay writing and interview will take place at the University premises at Chitlang.

Shortlisting

Students will be shortlisted based on the cumulative score of the first five criteria. The number of students shortlisted will not exceed the double of the planned intake.

Final selection

The final selection for the admission will be based on the cumulative score of all criteria.

9. Pledge

The selected students shall be required to sign a pledge committing, among others, to complete the study, serve the MBUST or an institution assigned by the MBUST in lieu of scholarship and fee waiver provided at the time of admission.

President
Madan Bhandari University of Science and Technology

Attachment 1

Program Structure

A. Artificial Intelligence

Program Description

Artificial intelligence (AI) has become an important part of our society. It has created opportunities to transform existing structures and models in businesses, the public sector, and society. Machine learning (ML), an important component for building AI applications, is gaining popularity in automated decision-making with the availability of large-scale data and affordable infrastructure. With these developments, skilled AI and ML engineers and data scientists are in high demand with a wide range of career opportunities everywhere. The program aims to give fundamental knowledge and practical skills needed to design, build, and apply AI systems in a chosen area of specialization.

Designing applications which delivers an impact and contributes to sustainable development is an important aspect of the training. Students will undertake projects relevant to one or more Sustainable Development Goals (SDGs). Furthermore, these goals are introduced in the elective courses along with the use cases in core courses where AI has had an impact.

This two-year program has been developed to fill the gap in the availability of skilled AI scientists and engineers in Nepal. The program will offer rigorous training in the foundations and application-oriented artificial intelligence. Graduates of this program will have explored a variety of domains such as agriculture, healthcare, industry automation and social media to contribute to economies and societies. They will be capable of undertaking careers in the industry as well as academia.

Learning Outcomes and Career Opportunities

Students who complete the program will be able to demonstrate the ability to integrate AI in various social and organizational contexts. Furthermore, they can design and evaluate AI innovations. They will possess competence and skills to integrate knowledge, analyze complex situations with limited information, identify and creatively address critical issues, plan and execute advanced tasks within set time frames, evaluate their work, effectively communicate findings both nationally and internationally, and possess the skills needed for research, development, or qualified employment. Specific learning objectives of the program include:

- Understand the fundamentals of artificial intelligence, machine learning, natural language processing and computer vision
- Hands-on knowledge of state-of-the-art tools for real-world problem solving
- Analyze and critically discuss ethical issues within AI and that arise from the application of AI
- Review and criticize scientific literature
- Account for the current situation and prospects of AI for some domains such as agriculture, healthcare, IoT, industrial automation and social media

The graduates will be equipped to take roles such as:

- AI scientists at technology companies working on cutting-edge technologies
- Industry-sponsored PhD

- Analyst and scientist working in banking, finance, telecommunication, health, agriculture, and other sectors that require a systematic understanding of AI and the context
- Entrepreneurs of technology-based business start-ups

Program Structure

Course Code	Course Title	Credit
Semester I		
AI-CR-501	Machine Learning	3
AI-CR-502	Practical Data Science with Python	2
AI-CR-503	Project in People-Centered AI	2
AI-CR-504	Research Methods for intelligent Systems	1
GC-NC-550	Entrepreneurship, Scientific Communication and Leadership (4 hours)	0
Semester II		
AI-CR-550	Computer Vision	3
AI-CR-551	Natural Language Processing	3
AI-EL-561~570	Elective 1	2
GC-CR-501	Development Policy	3
AI-NC-553	Case Studies in Ethics and Fairness in AI (1 hour)	0
AI-TH-699	Thesis	4
Semester III		
AI-CR-601	Advanced Topics in Deep Learning	3
AI-EL-561~570	Elective II	2
AI-TH-699	Thesis	12
Semester IV		
AI-TH-699	Thesis	13
Total credit hours for thesis = 30; total credit hours for core and elective courses not less than 20.		

Courses for Electives

Students must select two electives from the list below.

- Reinforcement Learning
- Artificial Intelligence and Multi-Agent Systems
- Graphical Models
- AI for Agriculture
- AI and Internet of Things
- Applied Health Care and AI
- Industrial AI and Automation
- Social Media Analysis for Social Good

- Data, Algorithm and Society
- Signal processing for music information retrieval

B. Data Science

Program Description

The two-year Masters of Applied Science in Data Science program is a research-based graduate program that aims to provide students with advanced knowledge and research skills in the field of data science. In this program, students will embark on a journey to explore data science, from foundational concepts to cutting-edge research. Through a blend of core courses, electives, and research, students will engage in deep learning and application of data science principles, culminating in the completion of an original research thesis. This program is structured to nurture critical thinking, problem-solving, and ethical research practices in data science.

Students who complete the program will be able to gain a deep understanding of data science principles, methodologies, and emerging trends. They will develop expertise in machine learning, statistical analysis, and model evaluation to solve real-world problems. Through independent research, they will contribute novel insights while upholding ethical and responsible data practices. The program fosters interdisciplinary collaboration, enabling graduates to apply data-driven solutions across sectors like healthcare, finance, and technology. Additionally, they will enhance their ability to communicate complex data science concepts effectively. With these skills, graduates will be well-prepared for careers in research, academia, and industry.

Specific learning objectives of the program include:

1. Implement machine learning algorithms to solve real-world data science problems.
2. Evaluate and compare the performance of machine learning models and choose appropriate techniques for specific tasks.
3. Conduct advanced statistical analysis to derive insights from data.
4. Critically assess and apply ethical guidelines and research methods to ensure the validity of data science research.
5. Create novel research contributions in the field of data science through the Master's thesis.

The graduates will be equipped to take roles such as Data Scientist, Machine Learning Engineer, Data Science Researcher, and Big Data Analyst, applying data-driven solutions in industries like healthcare, finance, and technology. They can also pursue academic and research careers as PhD researchers or university faculty members or work as AI and Data Ethics Consultants, ensuring responsible AI practices. Additionally, opportunities exist in R&D departments, where graduates can drive innovation through advanced data science research and development.

Program structure

Course Code	Course Title	Credit
Semester I		
DS-CR-501	Programming for Data Science	2
DS-CR-502	Data Analytics and Visualization	3
DS-CR-503	Machine Learning for Data Science	3

DS-CR-504	Research Methods for Data Science	1
GC-NC-550	Entrepreneurship, Scientific Communication and Leadership (4 hours)	0
Semester II		
DS-CR-550	Data Engineering and Architecture	2
DS-CR-551	Deep Learning	3
DS-EL-561~570	Elective I	2
DS-EL-561~570	Elective II	2
GC-CR-501	Development Policy	3
DS-TH-699	Thesis	4
Semester III		
DS-TH-699	Thesis	13
Semester IV		
DS-TH-699	Thesis	13
Total credit hours for thesis = 30; total credit hours for core and elective courses not less than 20.		

Elective Courses

Students must select two electives from the list below.

● Generative AI and Applications ● Text Mining and Information Retrieval ● Human-Computer Interaction ● AI in IoT ● AI in Agriculture	● AI in Climate ● AI in Tourism ● Social Network Analysis ● Healthcare Analysis ● Signal processing for music information retrieval

Attachment 2

Resource Persons

Artificial Intelligence and Data Science

1. Prof. Suresh Manandhar, Honorary Chair, Artificial Intelligence, MBUST; Former Professor, University of York, UK
2. Prof. Bishnu Prasad Gautam, Full Professor, Department of Economic Informatics, Kanazawa Gaukin University, Japan
3. Dr. Ved Prasad Kafle, Research Manager, National Institute of Information and Communications Technology, Japan; Visiting Professor, The University of Electro-Communications, Japan
4. Dr. Bhuwan Bhattarai, Assistant Professor, MBUST
5. Dr. Rajib Subba, Assistant Professor, MBUST
6. Dr. Aamod Khatiwada, Computer Science, Microsoft, USA
7. Dr. Shree Krishna Acharya, Postdoc Researcher, University College Dublin, Ireland
8. Dr. Manoj Acharya, Machine Learning Researcher, SRI, USA.

Attachment 3

Framework for Research Statement

Research statement of up to 600 to 800 words related to the program the student has applied for shall be developed by the applicant. The statement shall include

- Title
- Research problem definition
- Importance of the selected research problem in terms of contribution to national economy
- Research plan
- Expected results and impact

Attachment 4

Framework for Personal Statement

A personal statement shall be a concise description of the personal background, academic journey and research interests of the applicant of up to 800 to 1,000 words. It shall also highlight specific qualities and special skills of the applicant which may be helpful for the successful completion of the studies and research. He/she shall also describe the reasons for selecting MBUST and the program.

Attachment 5

Format for Publication List

In chronological order based on the year of publication

No.	Title of the publication	Author/s	Name and other details of Journal/Book/others	Web reference	Year