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## Message

## Adjutant General, Bangladesh Army





I am very delighted to know that Bangladesh Army University of Science and Technology (BAUST), Saidpur has recently published the fifth circulation of "BAUST Journal". This auspicious moment is a testimony to the continuous endeavor of BAUST, Saidpur to become a center of excellence for education and research activities in the fields of engineering, technology, science, arts and business administration.

Education is power, and the backbone of a nation. Quality education is essential to create the future leaders of the world. Quality education entails a significant amount of research and knowledge-gathering activities beyond the class hours. Engaging oneself in research and innovation broadens the horizon for students and sharpens the minds of educators. Having a platform to nurture such research and innovative activities is essential for an ideal university. The regular publication of BAUST Journal is thus of great significance.

I would like to convey my sincere appreciation to the Vice Chancellor of BAUST, Saidpur for his noble initiative and his continuous support for the success story of BAUST Journal. My heartfelt gratitude goes to the members of the editorial board, the reviewers, and all others involved in this effort. I would like to congratulate the authors on the publication of their research papers. I advise the students and the faculty members of BAUST, Saidpur to continue the culture of research and innovative activities. I wish "BAUST Journal" a glorious future. May Almighty Allah bless us all.



Major General Md Jubayer Salehin, BSP, SUP, ndu, psc

Adjutant General, Bangladesh Army

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## Message

# Vice Chancellor Bangladesh Army University of Science and Technology





I am extremely happy on the occasion of publishing the first issue of volume 3 of the BAUST Journal. Bangladesh Army University of Science and Technology (BAUST), Saidpur is striving hard to fulfill its mission in becoming the center of excellence in the fields of engineering and technology, arts and business administration through useful research in various fields along with a state-of-the-art education system. The fifth publication of the BAUST journal is a testimony to its ever-broadening footprint of research and innovation in the academic arena.

BAUST, Saidpur boasts of an impressive team of qualified faculty members and talented students. The quantity and quality of research and innovation have been continuously improving, which is reflected in the impressive collection of peer-reviewed articles. BAUST journal is a gateway to local and international researchers to publish their genuine research outcomes. This serves the country's and Bangladesh Army's initiative to spread quality education among the future leaders of the country.

I am thankful to the authors, the reviewers, the editorial team, the members of the BAUST Journal committee, and the Board of Trustees members of Bangladesh Army University of Science and Technology for their efforts which resulted in the publication of the current issue. My heartfelt gratitude goes to Bangladesh Army Welfare Trust and Army Headquarter Rangpur area for their contribution to the development of BAUST and their support in the publication of BAUST Journal. I wish BAUST Journal all success in becoming an outlet of the center of excellence in teaching, research, and innovation activities. May Almighty bless us all and help us in our noble endeavors.



Brigadier General Md Sanuwar Uddin, ndc, psc, PhD, PEng (LPR)

Vice Chancellor Bangladesh Army University of Science and Technology (BAUST), Saidpur Chief Patron, BAUST Journal

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## Message Chief Editor BAUST Journal





I am happy to see the publication of the December 2023 issue (first issue of the third Volume) of the half-yearly Journal published by Bangladesh Army University of Science and Technology, Saidpur. For some unavoidable reasons the appearance of this issue is delayed and I regret this delay. This issue showcases a total of 10 research articles (3 on engineering science and technology, 2 on business studies and 5 on language and literature). I congratulate all the young and experienced researchers for their well- researched articles which have constituted the main body of this journal. BAUST is hospitable enough to entertain articles coming from faculties of other universities as well. It may be mentioned here that 6 articles accommodated is this issue are from outside BAUST. I would appreciate more articles from BAUST faculties.

The articles published in this volume were, as usual, reviewed by a panel of renowned professors from different universities in Bangladesh. Their valuable comments on and suggestions for the improvement of the articles have certainly enriched their standard. The editorial board are indebted to all the reviewers and recognize their co-operation with deep gratitude.

On behalf of the editorial board and on my own behalf, I would like to thank our chief patron, honorable Vice-Chancellor of BAUST, Brigadier General Md Sanuwar Uddin, ndc, psc, PhD, PEng (LPR) for his cordial support and wise guidance for the publication of this journal. I also thank the members of the editorial board for their hard work. I hope readers will find all the articles in this journal interesting and useful, and they will make a significant contribution to the field of education and research. I am looking forward to quality articles for the next volume of the BAUST journal.

J. Islam

Professor Md. Jahurul Islam

Dean

Faculty of Science and Humanities, and Chief Editor, BAUST Journal

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