# **About Journal**

Journal of UTEC Engineering Management (JUEM) is an academic, not for profit, blind peer-reviewed journal of research across technical disciplines. It aims to provide teachers, students and learned members of the community an authentic open-access platform featuring scholarly research, reviews and experiments on the state of current discourse on topics of interdisciplinary interest. The annual journal is published both in print and electronic forms once a year. JUEM is published by United Technical College, a college of Engineering situated at Bharatpur, Chitwan, Nepal affiliated to Pokhara University.

## The key objectives of JUEM Journal are:

- 1. To publish high-quality research articles, reviews and experiments per issue and move forward the multi-disciplinary innovation for knowledge generating on improving human conditions.
- 2. To provide authors with detailed and constructive feedback within weeks of their submission of articles.
- 3. To keep a tally of interdisciplinary knowledge and theory building works from the submissions received on making the academic innovation more smarter, sustainable, and practicable.
- 4. To ensure the implementation of copyright and intellectual property laws.
- 5. To explore tools and resources for visibility of the journal and maintenance of its international standards for dissemination of findings.

# Scope of the Journal

The Journal of UTEC Engineering Management is a scholarly, peer-reviewed journal whose main function is to promote best practices globally in civil engineering and related disciplines. The journal publishes original research articles and review articles across a wide range of topics, such as structural mechanics, geotechnical engineering, road and bridge design, construction technology and management, urban planning, information technology in construction, fire protection, building renovation, and worker safety. The journal also accommodates multidisciplinary viewpoints by including related disciplines such as electrical, computer, industrial, and mechanical engineering; architecture; environmental studies; or advanced mathematics.

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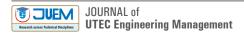
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# Editorial Note

We are excited to announce the third volume of the UTEC Journal. This issue emphasizes research pertaining to technology, engineering, management, and applied science with multidisciplinary. The collection complements our intent to advance academic excellence and engagement across the fields. We are excited to announce the inaugural issue of the third volume of the UTEC Journal. This issue presents research on technology, engineering, management, and applied science. This collection of research fits with our objective, broadly speaking, of promoting academic excellence and engagement across the categories.



The articles explore timely issues and provide forward-looking solutions such as innovative computational models, sustainable material design, and new technological applications in automation and data analytics. All these articles have gone through a double-blind peer review process to uphold the integrity, originality, and scholarly respectability of the work.

We sincerely thank the authors for their contributions and our international panel of reviewers for their efforts in strengthening this issue. We appreciate the many hours our reviewers spend on good works that support good scholarships and volunteers ensuring that academic peer review remains trustworthy.

We would also like to extend our sincere thanks to our editorial board, the UTEC academic community, and the international public for their support. The expanding pace of technological change makes the role of curated and quality knowledge more important than ever.

We want to encourage researchers and practitioners from the different relevant disciplines to think about the UTEC Journal for their future works. Let's continue to work together in the exploration of new realities and in the creation of a technologically advanced, sustainable, and equitable future.

Welcome to Volume 3, Issue 1.

The Editor-in-Chief **Prof. Madhav Prasad Koirala, Ph.D.**On behalf of the Editorial Board
Journal of UTEC Engineering Management
Bharatpur-11, Chitawan, Nepal, 2025



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