

ISSN: 1656-1996
Vol 8, Issue 6
Jun. 2026

Journal of Research in Science and Engineering

Journal of Research in Science and Engineering (JRSE)

ISSN: 1656-1996

Bryan House Publishing Limited
contact@bryanhouspub.org
www.bryanhouspub.org
Telephone:
0044-121-7813744



BRYAN HOUSE PUBLISHING LIMITED
Multidisciplinary Academic Journal Publisher



Journal of Research in Science and Engineering (JRSE)

ISSN 1656-1996

Editor-in-Chief

Dr Taylor M. Matt, University of Macquarie, Sydney, Australia

Editorial Board Members

Dr. Markus Haag, Department of Management and Business Systems, University of Bedfordshire, United Kingdom

Professor Nathan N. Elekwa, University of Nigeria, Nsuka, Nigeria

Dr. Vin vng, Department of computer, University of Bedfordshire, United Kingdom

Dr. Stephen Mackson, Department of Management and Business Information Systems, University of Bedfordshire, UK

Dr. Make Smart, Faculty of Mathematics and Natural Science, University of Augsburg, Germany

Dr. Matthew Peters, Department of computer Science, University of Western Sydney, Australia

Deepankar Choudhury, Associate Professor, Department of Civil Engineering, Indian Institute of Technology (IIT) Bombay, Powai, Mumbai, India

Copyright

Journal of Research in Science and Engineering (JRSE) is licensed under a Creative Commons-Non-Commercial 4.0 International Copyright (CC BY-NC4.0). Readers shall have the right to copy and distribute articles in this journal in any form in any medium, and may also modify, convert or create on the basis of articles. In sharing and using articles in this journal, the user must indicate the author and source, and mark the changes made in articles. Copyright © Bryan House Publishing Limited. All Rights Reserved.

Journal of Research in Science and Engineering (JRSE)

ISSN 1656-1996

Aims and Scope

Introduce the new peer-reviewed, open access journal entitled *Journal of Research in Science and Engineering (JRSE)* is an international open access journal publication by Bryan House Publishing Limited.

All manuscripts must be prepared in English and are subject to a rigorous and fair peer-review process. The journal publishes original papers including but not limited to the following fields:

- Aerospace Engineering and Technology
- Architectural Engineering and Technology
- Artificial Intelligence Technology
- Automatic Speech Recognition Technology
- Bioprocess Engineering
- Chemical Technology
- Civil Engineering
- Composites Engineering
- Control Engineering
- Data Engineering
- Ecological Science and Technology
- Electrical and Computer Engineering
- Engineering Education
- Engineering Geology
- Engineering Physics
- Environmental Sciences
- Food Science and Engineering
- Genetic Engineering and Biotechnology
- Green Energy Engineering and Technology
- Hydraulic Engineering
- Industrial Technology
- Information Technology
- Manufacturing Engineering and Technology
- Materials Science and Engineering
- Medical and Biomedical Engineering
- Micro-System Technology
- Military Technology and Equipment
- Nano-System Technology
- Naval Engineering
- Nuclear Science and Technology
- Opto-Mechatronics
- Particle Physics
- Petroleum Engineering
- Pharmaceutical Engineering
- Polymer Engineering
- Reservoir Engineering
- Security Engineering
- Structural Engineering

We are also interested in: 1) Short Reports - 2-5 page papers where an author can present either preliminary data or an idea with theoretical background but has not yet completed the research needed for a complete paper; 2) Book Reviews - Comments and critiques.

Bryan House Publishing Limited.

E-Mail: contact@bryanhouspub.org

Official Website: www.bryanhouspub.org

Address: Flat 4, Huntingdon House Faulkers Farm Drive Edington,
Birmingham West Midlands, United Kingdom, B23 7XF.

Telephone: 0044-121-7813744

CONTENTS

- 1 Optimizing Software Performance: Analyzing Code Efficiency and Systemic Bottlenecks**
Mohammed Saleem Sultan
- 4 An Enhanced Cryptographic Scheme Utilizing Byte Rotation and LU Decomposition**
Roma Smart Joseph, Chaitanya Kaushal
- 9 Strategies for Zero-Downtime Cloud Migration of Oracle Databases**
Mohammed Karuppusamy
- 12 An Interpretable XGBoost-Based Mortality Prediction Model for ICU Heart Failure Patients:
Leveraging the eICU Database and SHAP Analysis**
Jianghai Lan, Zhen Liao, Xu Zhou
- 17 Research on the Mechanism and Path of Custom Furniture Industry Transformation Driven by
Modular Design**
Jiacong Wen, Lin Yuan, Xiang Wang
- 22 Reframing the Sliding Conductor Problem: Integrating Physical Principles and Pedagogical
Scaffolding for Enhanced Conceptual Understanding**
Yubin Zheng
- 27 Catalytic Reforming for Hydrogen Production from Biomass Gasification**
Gao Zhang, Dihong Wang, Zhentang Cao
- 33 Process Validation as a Critical Enabler in Pharmaceutical Manufacturing**
Narendar Kumar Ale
- 37 Advancing Payroll Automation: An AI-Powered Chatbot Utilizing RAG, Cosmos DB, and Azure
OpenAI**
Srivatsa Chetlur
- 41 Accelerating Performance Issue Detection in Distributed Systems Using Automated Latency
Fingerprinting**
Furqan Mulla
- 46 Integration of Community Space and Design of Educational Space under Child Friendly Concept**
Xiangxin Ren, Yimeng Zhang, Haoran Zhang
- 53 A Review of Low-Cost Natural Adsorbents for Heavy Metal Removal from Wastewater**
Kulbir Singh