



*A Century of Service to the Nation*

**Volume 10 | Issue 12 | December 2025**

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# Notification on the R&D

Volume 10 | Issue 12 | December 2025

## IEI R&D Grant-in-Aid

To promote appropriate technology, assist in building up design & research talents and, most importantly, to help in nurturing potential R&D venture amongst engineering students pursuing Diploma/UG/PG/PhD courses, The Institution of Engineers (India) has instituted the R&D Grant-in-Aid programme way back in 2001.

Like every year, the Institution invites applications for the session 2025-26 for funding industry-oriented R&D projects and research initiatives aimed at improving the lifestyle of common people from engineering students pursuing full-time Diploma/UG/PG/PhD engineering programme in AICTE/UGC/NAAC approved Institutions/Colleges/Universities. The application form and guidelines are available on our website <https://www.ieindia.org>. The projects should be carried out under the guidance of faculty members who are Corporate Members of IEI. Membership criteria for student investigator(s), guide(s) and Institution(s) are as follows:

Project Category	Student/Applicant Membership	Guide(s) Membership	Institutional Membership	Quantum of Grant (INR)
1. Diploma	Exempted [Membership of Student Chapter is desirable]	AMIE/MIE/FIE	Not Mandatory	Not exceeding ₹15,000/- for a single project
2. UG (BE/ BTech/ AMIE/ Equivalent)	SMIE	AMIE/ MIE/ FIE	Applicant's Institute should preferably be an Institutional Member with NBA/NAAC Accreditation	Not exceeding ₹50,000/- for a single project
3. PG (ME/ MTech/ Equivalent)	AMIE/ MIE/ FIE	MIE/FIE	Applicant's Institute should preferably be an Institutional Member with NBA/NAAC Accreditation	Not exceeding ₹1,00,000/- for a single project
4. PhD	AMIE/ MIE/ FIE	MIE/FIE	Applicant's Institute should preferably be an Institutional Member with NBA/NAAC Accreditation	Not exceeding ₹1,50,000/- for a single project

The soft copy of the duly filled-up applications (in editable format), as per the pro-forma available in our website [www.ieindia.org](http://www.ieindia.org), should be sent through email to [research@ieindia.org](mailto:research@ieindia.org) and one printed copy of the same should reach the following address:

**The Deputy Director (Technical)**

The Institution of Engineers (India)  
8 Gokhale Road, Kolkata 700 020

Applications received in format other than that available on our website will not be accepted. Application should be forwarded through the Guide, Head of the Department or Head of the Institution. Please note that preference will be given to project proposals received from Institutions who are Members of The Institution of Engineers (India) and with NBA / NAAC Accreditation. Kindly go through the guidelines (visit link <https://shorturl.at/BiAOQ>) carefully before filling up the application.

The grant is not intended for the faculty members / working individuals who have access to other avenues of research funding. Proposals received will be scrutinized and the recipients of R&D Grant will be informed accordingly.

# Members in the News

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## Dr G Ranganath, FIE

Immediate Past President, IEI &  
Principal, Adhiyamaan College of Engineering (Autonomous), Hosur, Tamil Nadu  
✉ rangnanathiei@gmail.com

Dr G Ranganath was conferred **Honoray Fellowship** by The Indian Society for Technical Education (ISTE) during the 55th ISTE National Annual Faculty Convention at Shri Manakula Vinayagar College of Engineering, Puducherry, 29-30 November 2025.



## Prof Purushottam Balasaheb Pawar, MIE

Lecturer  
SVPM's Institute of Technology and Engineering Malegaon Bk-Baramati, Maharashtra  
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Prof Purushottam Balasaheb Pawar received the **National Teachers Award 2025** from Hon'ble President of India Smt Droupadi Murmu, the selection process was carried out Ministry of Education, Government of India

The following esteemed Corporate Members were conferred with the prestigious Professional Engineer (PE) Certificate from IEI after successful completion of the assessment process and they have been authorised to use the style and title of P Eng (I) by virtue of expertise in their field:



## Er Sandeep Bajirao Kulkarni, MIE & PE7007979 (Certified Professional Engineer, IEI)

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Valid from: 01 December 2025  
Valid up to: 30 November 2030

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## Know-Your-Member (KYM)

Is your mobile number & email updated with us? If not, then please forward your **Know-Your-Member (KYM) form immediately to participate in the Elections of IEI from 2026** onwards.

You are requested to forward your KYM along with the self-attested copy of photo ID proof to the address given below:-

**Deputy Director (Membership)**  
The Institution of Engineers (India)  
8 Gokhale Road, Kolkata 700020  
Email: datamemb@ieindia.org

The form is available on IEI Website at <https://shorturl.at/8Q5tF> or **scan the code** below:



# Members in the News

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Valid from: 01 December 2025  
Valid up to: 30 November 2030



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Valid from: 01 December 2025  
Valid up to: 30 November 2030



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Valid from: 01 December 2025  
Valid up to: 30 November 2030

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## Professional Engineers (PE) Certification by IEI — A Pathway towards Success

Get the **Professional Engineers Certification** by IEI to enhance your knowledge, skill and competency and also elevate your career by becoming a member of an elite group of engineers.

### Who can be a Professional Engineer —

- Having Bachelor's in Engineering or equivalent recognized by Statutory Authority or Government of India;
- Having experience of at least 5 years in engineering practice.

### Why become a Professional Engineer (PE) —

- Improved career prospects and employability;
- Makes you suitable to attain higher levels of authority and responsibility;
- It is envisaged that in future, only a professional engineer would be empowered to prepare, sign, seal and submit engineering plans and drawings to a public authority for approval, or to seal engineering work for public and private clients;
- With growing economy and large scale expansion of infrastructure, the demand of PE certified engineers are expected to be much higher.

### How to apply for Professional Engineers?

The details are available on IEI Website

<https://shorturl.at/mRIYu>

or

scan the code



For any query and assistance, please send email to: [pe@ieindia.org](mailto:pe@ieindia.org) or contact (033) 40106275

# Members in the News

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Valid from: 01 December 2025  
Valid up to: 30 November 2030



**Er Devpalsinh Indrajitsinh Gohil**, AMIE & PE7008029 (Certified Professional Engineer, IEI)  
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Valid from: 01 December 2025  
Valid up to: 30 November 2030



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Valid from: 01 March 2025  
Valid up to: 28 February 2030

## Be Proud to be a Certified International Professional Engineers (IntPE) by IEI

### Who can apply for International Professional Engineers?

Basic Requirements for certification as International Professional Engineer

- ◎ Bachelor's Degree in Engineering or equivalent recognised by Statutory Authority or Government of India;
- ◎ Experience of 7 years in engineering practice. Out of 7 years of experience 2 years in a responsible position of significant engineering activity.

### How to apply for International Professional Engineers?

For details  
please visit the link:  
<https://shorturl.at/j36fo>  
or  
scan the code →



### Why become an International Professional Engineer ?

International Professional Engineer (Int.PE) Certification enables engineering professionals to advance their career aspiration in wide ranging ways.

- ◎ The International Professional Engineers, registered with IEI, may receive credit when seeking registration or licensure in the jurisdiction of another member, i.e, this will facilitate an engineer in mobility across member jurisdictions;
- ◎ Empowered by International Professional Engineers Agreement (IPEA), IEI maintains the Register of International Professional Engineers (IntPE) in India;
- ◎ Enhances an engineering professional's stature and gives confidence to employer/ prospective employer about competency of Certified Engineer;
- ◎ IntPE Certificate facilitates an engineer in Professional Mobility.

For any query and assistance, please send email to: [pe@ieindia.org](mailto:pe@ieindia.org) or contact (033) 40106220

# Publication by Members

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## Book



**Professor Veer Parkash Sethi, MIE**

Head

Department of Mechanical Engineering, Punjab Agricultural University, Ludhiana

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## **Greenhouse Engineering: Software-driven Design and Modelling for Optimal Microclimate Control**

### About the Book

The comprehensive software-based approach in this book provides an in-depth exploration of the latest innovations in greenhouse engineering, thus transforming the existing Controlled Environment Agriculture (CEA) to a futuristic Greenhouse Smart Agriculture (GSA), aiding the reader to optimize crop yields, reduce environmental impact, and enhance farm profitability through software decision support systems. From renewable energy solutions and software-driven sustainable practices to AI powered optimization and integrated smart greenhouse design, it covers the entire spectrum of GSA, including practical knowledge, global case studies, and real-world examples.

Key features:

- Explores innovative renewable energy solutions for Greenhouse Smart Agriculture Implements software-driven sustainable solutions for optimized crop yields and reduced environmental impact
- Develops innovative control strategies for Greenhouse Smart Agriculture using artificial intelligence, the Internet of Things, and advanced techniques
- Optimizes greenhouse production through modelling and simulation techniques for enhanced sustainability
- Designs and implements sustainable greenhouse climate control systems for heating, cooling, and energy efficiency
- Creates integrated smart greenhouse systems that combine automation, renewable energy, and sustainable design
- Harnesses the power of artificial intelligence, the Internet of Things, and data-driven approaches to enhance greenhouse optimization and sustainable agriculture
- Integrates smart soilless greenhouse agriculture and aquaponics using a design-to-software approach

This book is aimed at university and greenhouse industry researchers, agricultural engineers, and graduate students in fields such as agriculture, agricultural and biosystems engineering, horticulture, environmental science, and renewable energy, as well as professional agricultural policymakers.

### Details

ISBN 9781032713953

Published Date: 1st Edition, August 19, 2025

Publisher: Taylor & Francis Group, CRC Press



# Publication by Members

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## Paper published in the Journals / Proceedings



**Dr Kudiyarasan Swamynathan**, FIE & PE7004309 (Certified Professional Engineer, IEI)

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### Title of Paper: **Implementation of Leak Before Break (LBB) Criteria in Fast Spectrum Reactor**

International Journal of Advanced Nuclear Reactor Design and Technology, Elsevier, 7(4), December 2025, pp 423-435, Online ISSN: 2468-6050

DOI: <https://doi.org/10.1016/j.jandt.2025.10.004>

Co-authors: Sitangshu Sekhar Biswas, Soham Banerjee, Sudip Ghosh & Prabhat Kumar

**Abstract:** Sodium is employed as a coolant in the primary and secondary loops of fast reactors to transfer heat from the reactor and deliver it to the expander. However, handling sodium poses challenges and can be hazardous, as it reacts exothermically when exposed to air. Again, though there are radioactive barriers, there will be some radiation in the liquid coolant which makes it even more hazardous. Generally, P91 (9 % Cr and 1 % Mo) material is used in sodium-cooled nuclear reactors for its high-temperature strength, excellent creep resistance, and good corrosion and oxidation resistance, making it ideal for the demanding environment within the reactor and coolant line (Kudiyarasan and Biswas, 2024). Although, fast reactors operate at a lower pressure (1-2 MPa) compared to the pressurized water reactors (5-10 MPa), the operating temperature in the coolant line for fast reactors being very high (500 C-800 C) unlike PWRs (300 C), there is a risk of brittle failure, due to factors such as material embrittlement from radiation exposure or stress concentrations, due to environmental interactions or a combination of different hydraulic transients (i.e. water hammering, thermal hammering or creep etc.) that can lead to sudden catastrophic failure under certain conditions. After thermal hammering, the main reason of hydraulic transients in fast spectrum reactor is found to be "Water Hammering", which is nothing but sudden rise in pressure and propagation of pressure waves (shockwaves) resulting in high stress generation in the pipes. There are two primary reasons for "Water Hammering" i.e. i) Sudden closure or opening valves and ii) Due to sudden starting and stopping of pumps. In our paper, we have done numerical simulation on these hydraulic transient cases and found out the necessity to implement Griffith's criteria on designing the coolant line. Based on Griffith's LBB criteria and considering hydraulic transient scenario, we designed pipes for two different cases to find out the applicability of LBB criteria in transient case, experimentally and found out the criteria to be quite suitable to tackle this kind of problems in practical scenarios. Therefore, it seems obvious to always design the coolant line based on Griffith's criteria, so that leakage would occur before the complete failure takes place and this would give us ample time to successfully repair the coolant line before any catastrophic failure happens.

**Keywords:** Nuclear Reactors; Coolant Lines; Hydraulic Transients; Water Hammering; Leak Before Break; Critical Crack Radius



## IEI-Springer Journals



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24



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24



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19



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11



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# Publication by Members

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**Dr Anupam Tiwari, FIE**  
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**Title of Paper: Mitigating Quantum Threats in Space Domain: Challenges and the Role of Post-Quantum Cryptography**

2025 IEEE Space, Aerospace and Defence Conference (SPACE), IEEE, 25 September 2025, Electronic ISBN:979-8-3315-1552-2, Print on Demand(PoD) ISBN:979-8-3315-1553-9

**DOI:** <https://doi.org/10.1109/SPACE65882.2025.11171230>

**Co-author:** Alok Kumar Gupta

***Abstract:** As the role of space-based infrastructure becomes increasingly integrated with global communication, navigation, and data collection, cyber threats for attacks in the space domain expand, especially with the advent of quantum computing. Ground stations, space stations, payloads, and signal communications are vulnerable to quantum-enabled cyber threats that could undermine security and data integrity. This paper discusses the vulnerabilities that quantum computing poses to current cryptographic protocols and refocuses on implications for space domain systems. It analyzes the critical need to adopt post-quantum cryptography in order to secure space communications and minimize risks from quantum decryption. It further elaborates on the difficulties of PQC implementation within space-based systems, including issues related to resource constraints, system complexity, and integration with operational processes. This research provides key insights into some of the key practical considerations on how to maintain long-term secure space communications through a quantum-enabled future.*

**Keywords:** Quantum Computing; Space Communications; Cryptography; Space Stations; Satellite Communications



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**Title of Paper: Exploring Ways to Enhance Fire Safety in Paper Mills by Innovative Strategies**

Quarterly Journal of Indian Pulp and Paper Technical Association, The Official International Journal, 37(3) 2025, pp 78-81, ISSN-0379-5462

**URL:** <https://ippta.co/past-journals/>

***Abstract:** Any paper professional would agree that most of the paper mills have made good arrangements for fire safety in their plants. Mills are not only following the rules and regulations but are making their efforts to keep the mill environment safe. This is obvious, considering the fire accidents we hear about almost twice or thrice a year.*

*As discussed with many mill owners, whenever they hear about any such accident, the first action is to review own safety arrangements to pinpoint and highlight any weakpoint, so that suitable arrangements may be made in time. Still, accidents do take place.*

*This paper discusses the possible actions which may be considered to further safeguard our mills.*

**Keywords:** Paper Mill; Fire, Safety; Hazard; Accident; Waste Paper

## Corporate Air Ticketing for IEI Members

Corporate Members may book Corporate Air Tickets through M/s EBIX Travels Private Ltd. For details please visit

<https://www.ieindia.org/webui/IEI-AirTickets.html>

# Publication by Members

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## Er Ravi M, MIE

Assistant Executive Engineer

Water Resources Department, Mining and Monitoring Sub Division, Madurai, Tamil Nadu

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### Title of Paper: **Hydrogeochemical Analysis and Evaluation of Groundwater Quality for Drinking and Irrigation Purposes in Madurai North Taluk, Tamil Nadu, India**

Arabian Journal of Geosciences, Springer, 18, 12 November 2025, 214 (2025), Electronic ISSN: 1866-7538, Print ISSN: 1866-7511

DOI: <https://doi.org/10.1007/s12517-025-12374-3>

Co-authors: Dinesh Kumar M, Tholkapiyan M, Venkatraman V & Rajagopalan V

**Abstract:** This study presents a comprehensive assessment of groundwater quality in Madurai North Taluk, Tamil Nadu, with a focus on its seasonal variation and irrigation suitability. Groundwater samples were collected during the pre- and post-monsoon seasons of 2022 and analyzed for physicochemical parameters including pH, Electrical Conductivity (EC), Total Dissolved Solids (TDS), major cations ( $Ca^{2+}$ ,  $Mg^{2+}$ ,  $Na^+$ ,  $K^+$ ) and anions ( $Cl^-$ ,  $HCO_3^-$ ,  $SO_4^{2-}$ ,  $NO_3^-$ ) as well as Sodium Adsorption Ratio (SAR) and Sodium Percentage (Na%). The pre-monsoon season exhibited higher concentrations of salts, TDS, and Hardness, attributed to limited recharge and evaporation. Post-monsoon samples showed increased variability due to dilution, leaching, and anthropogenic return flows. Piper Trilinear Diagram interpretations revealed that  $CaHCO_3$  and mixed  $CaMgCl$  types were dominant, indicating rock-water interactions and the influence of domestic and agricultural effluents. The USSL Diagram showed that a majority of the samples fall within C2-S1 and C3-S1 fields, reflecting medium to high Salinity with low Sodium hazard. However, a few samples shifted toward C4 salinity classes, particularly in the post-monsoon season, indicates that the need for caution in irrigation usage. The Wilcox classification further supported these findings, with most samples falling into the “excellent to good” and “good to permissible” categories, though several were “doubtful to unsuitable” due to elevated Na%. Overall, the findings suggest that groundwater in the region is generally suitable for irrigation, but localized management strategies like adopting micro-irrigation, introducing salt-tolerant crops, and improving recharge through percolation ponds are required to mitigate increasing salinity and sodium hazards.

**Keywords:** Piper Trilinear Diagram; USSL Diagram; Wilcox Diagram; Sodium Adsorption Ratio; Hydrogeochemical Processes; Groundwater Contamination



## Er S Valai Ganesh, MIE

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### Title of Paper: **Sustainable Electronic Waste Management Framework for Academic Institutions in India**

Scientific Reports, Springer, 15, 18 November 2025, 40550, pp 1547-1556, ISSN: 2045-2322 (online)

DOI: <https://doi.org/10.1038/s41598-025-24278-z>

Co-authors: V Suresh, S Rajakarunakaran & V Suryakumar

**Abstract:** Technology is increasingly used in schools to teach, study, and organise. Technology use has increased e-waste. As “electronic waste” or “e-waste,” old laptops, desktops, projectors, and other devices contain hazardous components that can harm the environment if discarded improperly. This study examines the challenges learning institutions face in handling e-waste without compromising efficiency, including the need to stay current, insufficient funds to repair equipment, and a lack of knowledge on how to dispose of it. To overcome these obstacles, this article proposed a shared solution: a sustainable collaboration to manage electronic waste. e-waste data collection and analysis are the foundation of this framework. Of 452 electrical products, 32.1% were older than 5 years and 34.1% needed repair or replacement. On-site recycling offers a 90% material recovery rate and a 10,000 yearly profit after operational expenses, making it superior than external recycling (210,000 vs. 7,000). Real-time monitoring, automated reporting, and decision-support tools make the suggested concept reproducible for sustainable e-waste management in learning institutions. The suggested framework would reduce carbon emissions by 5-7 metric tonnes and salvage 15 tonnes of valuable materials annually. It also estimates the cost of delivering electronic waste to merchants and compares it to the cost of constructing an e-waste recycling centre in a learning institution. By working together, educational institutions may lessen their environmental effect and be responsible technology guardians for future generations.

**Keywords:** E-Waste; Sustainable Development; Challenges; Academic Institution; Policy

# Publication by Members

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## Dr Prashant Basavaraj Bhagawati, MIE

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### Title of Paper: Prediction and Optimization of Cationic Textile Dye Adsorption using Glutathione Functionalized Magnetic Core-shell Nanoparticles: An integrated RSM-ANN Modelling Approach

Environmental Sustainability, Springer, 18 November 2025, pp 1-26, Electronic ISSN: 2523-8922

DOI: <https://doi.org/10.1007/s42398-025-00381-9>

Co-authors: Monalisha Behera, Nisha Kumari, Prashant Kumar Jaiswal, Abideen Idowu Adeogun & Ritu Singh

**Abstract:** Despite having numerous dye-based treatment studies, there still exists a key challenge to determine the optimal process conditions for effective dye removal using experimental modelling. RSM and ANN are two of the influential modeling techniques in this regard. However, there are considerable knowledge gaps in determining their strength and weakness during prediction. Thus, this study is an attempt to understand the prediction abilities of both techniques in modeling the appropriate dye-removal conditions using GSH@Fe<sub>3</sub>O<sub>4</sub> core-shell nanoparticles in light of accuracy and resource management. Herein, GSH@Fe<sub>3</sub>O<sub>4</sub> nanoparticles were employed for the removal of crystal violet (CV) dye from an aqueous system through experimental modeling. The nanoparticles were characterized for their surface physico-chemical properties before and after dye removal. RSM-CCD model designed 50 experimental runs based on 5 input variables, i.e. adsorbent-dose, pH, reaction time, temperature, and initial dye-concentration to provide the output response, CV-removal %. The highest CV removal, i.e. 91.1% was observed when the GSH@Fe<sub>3</sub>O<sub>4</sub> MNPs dose was 1.88 mg, pH-11, initial CV dye concentration-100 mg/L, reaction time-50 minutes at room temperature. The quadratic-regression model of RSM-CCD design was found adequate in describing the CV dye adsorption by ANOVA-analysis with an R<sup>2</sup> value of 0.99 and predicted R<sup>2</sup> value of 0.98. A feed-forward backdrop network of 5:14:1 ANN architecture with Levenberg-Marquardt (LM) backpropagation algorithm was employed for training datasets. The ANN model was trained using the data obtained from the RSM-CCD model under the optimized conditions. The final modeling results were in best agreement with the experimental data with an R<sup>2</sup>-0.98 along with high R values of 0.98, 0.99, and 0.99 for training, validation, and test datasets respectively. Further, the mass analysis of residual CV samples in LC-MS indicated partial degradation of the dye molecules. Overall, the study's proposition of integrating RSM and ANN models to optimize and process control CV-dye removal with high accuracy has been found to be highly promising and could contribute to sustainable environmental engineering practices.

**Keywords:** RSM-CCD; ANN Model; Remediation; GSH@Fe<sub>3</sub>O<sub>4</sub>; Crystal Violet Dye



## Dr Somnath Mahato, MIE

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### Title of Paper: Performance Evaluation of Standalone NavIC for the Indian Missile Program

Defence Science Journal, Defence Scientific Information & Documentation Centre, 75(5), 01 September 2025, pp 637-644, pISSN: 0011-748X, eISSN: 0976-464X

DOI: <https://doi.org/10.14429/dsj.19755>

Co-authors: Mrinal Goswami, Sukabya Dan, Rowdra Ghatak & Anindya Bose

**Abstract:** Global Positioning System (GPS) is used for navigational purposes in the missiles during developmental, trials, and war scenario deployment. In this paper, the authors demonstrate typical time and location-dependent visibility problems of the GPS satellites for the elevation angles higher than 60° over a large part of the Indian sub-continent and the adjoining water bodies over the Bay of Bengal and Arabian Sea, which has the potential to adversely affect the missile flights during developmental trials and war scenarios, especially for the low elevation cruise missiles. The Indian regional navigation satellite constellation NavIC can effectively mitigate this visibility problem and ensure system independence from a strategic viewpoint. In this work, the standalone position solution quality of NavIC is evaluated statistically and compared with GPS from the Test Range. Promising results will encourage using the Indian constellation NavIC to ensure better position solution quality and system independence from a defence perspective.

**Keywords:** GPS; NavIC; Test range; Position solution; DOP; Missile

# Articles Published in Latest Issue of IEI Journals

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## Journal of The Institution of Engineers (India): Series A

[Agriculture, Architecture, Civil & Environmental Engineering]

(Electronic ISSN: 2250-2157; Print ISSN: 2250-2149)

[CiteScore: 2.8; h5 Index: 22]

[SCOPUS Indexed]

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### Volume 106, Issue 4, December 2025

- Title: **Discharge Patterns and Trends in the Jhelum River Basin: A Statistical and Spatial Analysis**  
Authors: **Humaira Hamid & Sandeep Samantaray**  
Department of Civil Engineering, National Institute of Technology Srinagar, Jammu and Kashmir, 190006, India  
Water Resources Management Centre, National Institute of Technology Srinagar, Jammu and Kashmir, 190006, India  
DOI: <https://doi.org/10.1007/s40030-025-00913-w>  
Online Publication Date: 30 July 2025  
Pages: 1043–1066
- Title: **Rainfall Forecasting Model for Amaravathi Basin Using Machine Learning Approach**  
Authors: **R. Nirranjana, R. Aishwarya, S. Tejshree, K. S. Gayathri, Surendar Natarajan & P. Thirunavukkarasu**  
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DOI: <https://doi.org/10.1007/s40030-025-00914-9>  
Online Publication Date: 12 August 2025  
Page: 1067–1080
- Title: **Effect of Location of Link Structure in Conjoined Multi-storied Building**  
Authors: **Mit R. Patel & Paresh V. Patel**  
Sterling Engineering Consultancy Services Pvt. Ltd, Mumbai, India  
Department of Civil Engineering, Institute of Technology, Nirma University, Ahmedabad, 382481, India  
DOI: <https://doi.org/10.1007/s40030-025-00915-8>  
Online Publication Date: 01 August 2025  
Page: 1081–1096
- Title: **Smartphone-Sensor Based Dynamic Time Warping Framework for Enhanced Pothole Detection**  
Authors: **Safa Koul, L. Janani, Kartik Asthana, Hyder Mushtaq, Mehvish Alvi & Devashish Kaushik**  
Civil Engineering Department, National Institute of Technology Srinagar, Srinagar, 190006, India  
DOI: <https://doi.org/10.1007/s40030-025-00916-7>  
Online Publication Date: 08 August 2025  
Pages: 1097–1108
- Title: **Comparative Study of Plasma-Activated Water Produced by Atmospheric Pressure 2.45 Ghz Microwave Plasma and Dielectric Barrier Discharge for Enhancing Food Preservation and Plant Growth**

# Articles Published in Latest Issue of IEI Journals

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- Authors: **Vikas Rathore, Kushagra Nigam, Chirayu N. Patil, Mudtorlep Nisoa & Sudhir Kumar Nema**  
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Homi Bhabha National Institute, Training School Complex, Anushaktinagar, Mumbai, 400094, India
- DOI: <https://doi.org/10.1007/s40030-025-00918-5>
- Online Publication Date: 18 August 2025
- Pages: 1109–1120
- Title: **Influence of MSR on Seismic Response of Different Percentage Staggered Rebar Lap Spliced RC Walls**
- Authors: **Abhishek Kumar & G. Appa Rao**  
Civil Engineering Department, Indian Institute of Technology Madras, Chennai, India
- DOI: <https://doi.org/10.1007/s40030-025-00919-4>
- Online Publication Date: 20 August 2025
- Pages: 1121–1132
- Title: **Profiling Partial Sleep Deprivation Among Indian Long-Haul Truck Drivers: A Pathway to Enhanced Road Safety and Occupational Well-Being**
- Author: **L. Janani, Mohammad Shafi Mir & Aquib Javid Mir**  
Department of Civil Engineering, National Institute of Technology Srinagar, Srinagar, India
- DOI: <https://doi.org/10.1007/s40030-025-00920-x>
- Online Publication Date: 26 August 2025
- Pages: 1133–1145
- Title: **Analysis of Century Old Masonry Tower of Indo-Sarascenic style: Visual Inspection, NDT and FEM**
- Authors: **Ambareesh Kumar & Kumar Pallav**  
Civil Engineering Department, Motilal Nehru National Institute of Technology Allahabad, Prayagraj, Uttar Pradesh, 211004, India  
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- DOI: <https://doi.org/10.1007/s40030-025-00921-w>
- Online Publication Date: 05 September 2025
- Pages: 1147–1178
- Title: **Assessing the Effectiveness of CA Integrated Models for Land Use Land Cover Prediction: A Comparative Analysis**
- Authors: **Ajisha Stephen & Manjula Renganathan**  
Department of Civil Engineering, National Institute of Technology, Tiruchirappalli, 620015, India
- DOI: <https://doi.org/10.1007/s40030-025-00922-9>
- Online Publication Date: 12 September 2025
- Pages: 1179–1199
- Title: **New Technique for Evaluating Concrete Strength through Non-Destructive Testing**
- Authors: **Mangesh D. Kevadkar, Ganesh A. Hinge, Sudhir A. Bhilare & Khurram Parvez**  
TSSM's Bhivarabai Sawant College of Engineering and Research, Savitribai Phule Pune University, Pune, Maharashtra, 411041, India  
JSPM's Rajarshi Shahu College of Engineering, Savitribai Phule Pune University, Pune, Maharashtra, 411037, India
- DOI: <https://doi.org/10.1007/s40030-025-00923-8>
- Online Publication Date: 08 September 2025
- Pages: 1201–1207
- Title: **A 3D Noise Hotspot Mapping Approach Using GIS Tools for Urban Roads in India**

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- Authors: **K. Anjana, Anu P. Alex & V. S. Manju**  
Department of Civil Engineering, College of Engineering, Trivandrum, Trivandrum, Kerala, 695016, India  
DOI: <https://doi.org/10.1007/s40030-025-00926-5>  
Online Publication Date: 17 September 2025  
Pages: 1209–1220
- Title: **A Methodological Approach for Urban Sustainability Assessment of Indian Cities: A Case of Jaipur**  
Authors: **Anjali Saraswat, Ashwani Kumar & Satish Pipralia**  
Department of Architecture & Planning, Malaviya National Institute of Technology, Jaipur, India  
Department of Architecture, National Institute of Technology, Hamirpur, India  
DOI: <https://doi.org/10.1007/s40030-025-00927-4>  
Online Publication Date: 22 September 2025  
Pages: 1221–1241
- Title: **Multi-nozzle Atomization Characteristics of Contact Electrostatic Spray with Experimental Study**  
Authors: **Changkun Zhang, Zengjia Luo, Jinliang Gong & Yanfei Zhang**  
School of Agricultural Engineering and Food Science, Shandong University of Technology, Zibo, 255000, China  
School of Mechanical Engineering, Shandong University of Technology, Zibo, 255000, China  
DOI: <https://doi.org/10.1007/s40030-025-00930-9>  
Online Publication Date: 10 November 2025  
Pages: 1243–1254
- Title: **Impact of Indoor Fungal Growth on Building Materials in Coastal Karnataka: A Comparative Study of Traditional and Modern Construction**  
Authors: **Muskan Ara, Ipsitaa Priyadarsini Das & Ramnath Nayak**  
Manipal School of Architecture and Planning, Manipal Academy of Higher Education, Manipal, Karnataka, 576104, India  
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Archisatva, Udupi, Karnataka, 576102, India  
DOI: <https://doi.org/10.1007/s40030-025-00931-8>  
Online Publication Date: 05 November 2025  
Pages: 1255–1267
- Title: **Statistical and ANN Modeling of Groundnut Seed Metering Unit Performance and Optimization Using TOPSIS**  
Authors: **B. U. Balappa, B. S. Dayananda, P. A. Dinesh & R. Suresh**  
Department of Mechanical Engineering, M S Ramaiah University of Applied Sciences, Bangalore, Karnataka, 560058, India  
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DOI: <https://doi.org/10.1007/s40030-025-00932-7>  
Online Publication Date: 11 November 2025  
Pages: 1269–1280
- Title: **Numerical Investigation of Two-Phase Flow Through Non-Prismatic Compound Channel**  
Authors: **Prajna Priyadarsini Roul, Deba Prakash Satapathy, Prateek Debadarsi Roul, Saipada B. B. P. J. Sahu, Bishnu P. Mishra & Manmatha K. Roul**  
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- Odisha, India  
Department of Mechanical Engineering, GITA Autonomous College, Bhubaneswar, Odisha, India  
DOI: <https://doi.org/10.1007/s40030-025-00928-3>  
Online Publication Date: 28 September 2025  
Pages: 1281–1295  
Title: **Urbanization and Plywood Demand: Evaluating Air Quality, Waste, and Health Concerns in the Indian Context**  
Authors: **Sravanth Tangellamudi, Vandana Radhakrishnan, Akhil Vikraman, Soumitra Maiti & Partha Kundu**  
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- DOI: <https://doi.org/10.1007/s40030-025-00925-6>  
Online Publication Date: 20 September 2025  
Pages: 1297–1309  
Title: **A Review on Water Management Strategies for Sustainable Development of Tomorrow**  
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Department of Environmental Engineering, Delhi Technological University, Delhi, 110042, India  
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- DOI: <https://doi.org/10.1007/s40030-025-00917-6>  
Online Publication Date: 01 September 2025  
Pages: 1311–1323  
Title: **Combined Strategy to Treat Kitchen Waste and Greywater Streams Using Anaerobic Digestion for Bioenergy Recovery in an Institutional Campus Community in India**  
Authors: **Adya Isha, Tinku Casper D' Silva, Ram Chandra, Paruchuri M. V. Subbarao & Virendra Kumar Vijay**  
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- DOI: <https://doi.org/10.1007/s40030-025-00924-7>  
Online Publication Date: 18 September 2025  
Pages: 1325–1333  
Title: **Evaluation of Growth Patterns and Urban Sprawl in Hazaribagh, India in between 2005 to 2025 Through Landscape Metrics**  
Authors: **Ravi Kumar, Vibhanshu Kumar, Birendra Bharti, Prabeer Kumar Parhi & Santosh S. Palmate**  
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Texas A&M AgriLife Research and Extension Center at El Paso, Texas A&M University System, El Paso, Texas, 79927, USA
- DOI: <https://doi.org/10.1007/s40030-025-00929-2>  
Online Publication Date: 16 October 2025  
Pages: 1335–1349

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### Volume 106, Issue 6, December 2025

- Title:** [Enhancing Pulmonary Embolism Segmentation Through Optimized SwinUnet with Resnet 152](#)  
**Authors:** **Harikrishna Mulam, Venkata Rambabu Chikati & Anita Kulkarni**  
Electronics and Instrumentation Engineering, VNR Vignana Jyothi Institute of Engineering & Technology, Hyderabad, Telangana, 500090, India
- DOI:** <https://doi.org/10.1007/s40031-024-01180-2>  
**Online Publication Date:** 20 November 2024  
**Pages:** 1691–1699
- Title:** [Sensing Performance Analysis of Passivated  \$\beta\$ -\(Al<sub>x</sub>Ga<sub>1-x</sub>\)<sub>2</sub>O<sub>3</sub>/Ga<sub>2</sub>O<sub>3</sub> Schottky Diode Gas Sensor with Catalytic Metals at High Temperature](#)  
**Authors:** **Shefali Mamataj, Bhaskar Roy, Deepshikha Datta, Ritam Dutta & Bimal Das**  
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- DOI:** <https://doi.org/10.1007/s40031-024-01182-0>  
**Online Publication Date:** 27 November 2024  
**Page:** 1701–1710
- Title:** [Birch Clustering Approach for Detection of Random Valued Impulse Noise](#)  
**Authors:** **Sulagna Basu & Aritra Bandyopadhyay**  
Department of Computer Science and Engineering, Supreme Knowledge Foundation Group of Institutions, 1, Khan Road, Mankundu, West Bengal, 712139, India
- DOI:** <https://doi.org/10.1007/s40031-024-01179-9>  
**Online Publication Date:** 02 December 2024  
**Page:** 1711–1719
- Title:** [Analysis of Solar Photovoltaic Integration and Plug-in Electric Vehicle Charging Systems with a Bidirectional Buck-Boost DC to DC Converter](#)  
**Authors:** **J. Rajalakshmi, S. Jeyanthi, A. Bhuvanesh & A. Arun Kumar**  
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- DOI:** <https://doi.org/10.1007/s40031-024-01185-x>  
**Online Publication Date:** 06 December 2024

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- Pages: 1721–1735
- Title: **LMS Algorithm Computation for Designing Adaptive Filtering Technique to Enhance Power Quality of Integrated Power System with Non-linear Load**
- Authors: **Md Ehtesham, Mohmmad Ahmad & Sheeraz Kirmani**  
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- DOI: <https://doi.org/10.1007/s40031-024-01187-9>
- Online Publication Date: 18 December 2024
- Pages: 1737–1748
- Title: **Efficient Dynamic Spectrum Allocation in Self-Organized Cognitive Radio Networks**
- Authors: **Debashree Brahma, Swati Swayamsiddha & Ganapati Panda**  
School of Electronics Engineering, Kalinga Institute of Industrial Technology (KIIT) Deemed to Be University, Bhubaneswar, Odisha, 751024, India  
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- DOI: <https://doi.org/10.1007/s40031-024-01190-0>
- Online Publication Date: 27 December 2024
- Pages: 1749–1756
- Title: **Detection of Stress from PPG and GSR Signals using AI Framework**
- Authors: **Swagata Barik, Vinay Kumar Thakur, Mohasin Ali Miah & Saurabh Pal**  
Department of Applied Physics, University of Calcutta, Kolkata, India
- DOI: <https://doi.org/10.1007/s40031-024-01191-z>
- Online Publication Date: 03 January 2025
- Pages: 1757–1765
- Title: **Internet of Things and Cloud Computing-Powered Virtual Laboratories for Enhanced STEM Education**
- Author: **Xiaochao Zhang**  
Liren College, Yanshan University, Qinhuangdao, 066000, China
- DOI: <https://doi.org/10.1007/s40031-024-01192-y>
- Online Publication Date: 02 January 2025
- Pages: 1767–1776
- Title: **L1-Norm Based IIR Type Fractional Differentiator Design with the Application of Bat Optimization**
- Author: **K Rajasekhar**  
Department of Electronics and Communication Engineering, University College of Engineering Kakinada, JNTUK, Kakinada, Andhra Pradesh, 533003, India
- DOI: <https://doi.org/10.1007/s40031-024-01183-z>
- Online Publication Date: 09 January 2025
- Pages: 1777–1782
- Title: **Density Based Clustering Approach Combined with Fuzzy Logic for Elimination of Random Valued Impulse Noise**
- Authors: **Sulagna Basu & Aritra Bandyopadhyay**  
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- DOI: <https://doi.org/10.1007/s40031-025-01195-3>  
Online Publication Date: 20 January 2025  
Pages: 1783–1796  
Title: **Marginal Price Settlement for a Cost Effective Power Industry with the Impact of Renewable Generation**  
Authors: **Priyanjali Mukherjee, Sushovan Goswami, Malay Saha, Bishaljit Paul, Raju Basak & Chandan Kumar Chanda**  
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- DOI: <https://doi.org/10.1007/s40031-024-01189-7>  
Online Publication Date: 23 January 2025  
Pages: 1797–1808  
Title: **Advanced Energy Management System: Z Source Converter Integration and Swarm-Optimized Control for Enhanced Performance in Hybrid Renewable Energy Systems**  
Authors: **Venkatesh Chiluka & G. G. Raja Sekhar**  
Department of Electrical and Electronics Engineering, Koneru Lakshmaiah Education Foundation, Vaddeswaram, Guntur, Andhra Pradesh, India
- DOI: <https://doi.org/10.1007/s40031-025-01196-2>  
Online Publication Date: 23 January 2025  
Pages: 1809–1827  
Title: **Application of Flower Pollination Algorithm and its Comparative Analysis for MPPT of Solar Panels Under Partial Shading Conditions**  
Authors: **Jahid, Md Ehtesham, Sheeraz Kirmani & Manaulah**  
Department of Electrical Engineering, Jamia Millia Islamia, New Delhi, India  
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- DOI: <https://doi.org/10.1007/s40031-025-01197-1>  
Online Publication Date: 27 January 2025  
Pages: 1829–1842  
Title: **A Novel Disc Herniation Prediction Utilizing the Power of Random Forest Base Predictive Models**  
Author: **Peng Li & Yipin Wang**  
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Nanjing Medical University, Nanjing, 211168, Jiangsu, China
- DOI: <https://doi.org/10.1007/s40031-025-01201-8>  
Online Publication Date: 03 February 2025  
Pages: 1843–1860  
Title: **A Novel Disc Herniation Prediction Utilizing the Power of Random Forest Base Predictive Models**  
Author: **Peng Li & Yipin Wang**  
Jiangsu Vocational Institute of Commerce, Nanjing, 211168, Jiangsu, China  
Nanjing Medical University, Nanjing, 211168, Jiangsu, China
- DOI: <https://doi.org/10.1007/s40031-025-01198-0>  
Online Publication Date: 07 February 2025  
Pages: 1861–1872  
Title: **Zero Knowledge Proof on Top of Blockchain for Anonymous and Verifiable E-Voting System**  
Authors: **Purushottam Sangraula & Nanda Bikram Adhikari**  
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- Title: **Optimization and Bandwidth Analysis of Simple Symmetrical Maze Pattern Shaped Slotted Microstrip Patch Antenna with Artificial Neural Network**  
Authors: **Om Singh, Shahanaz Ayub & S. K. Sriwas**  
Electronics and Communication Engineering, BIET Jhansi, Jhansi, India  
DOI: <https://doi.org/10.1007/s40031-025-01199-z>  
Online Publication Date: 07 February 2025  
Pages: 1873–1883
- Title: **A Spatial Attention-Based Transductive Long Short-Term Memory for Semantic Parsing Trained with a Semi-Supervised Method**  
Author: **Shichao Chen**  
College of Computer and Data Engineering, Bengbu College of Technology and Business, Bengbu, 233000, Anhui, China  
DOI: <https://doi.org/10.1007/s40031-025-01202-7>  
Online Publication Date: 14 February 2025  
Pages: 1885–1900
- Title: **Graph Convolutional Networks for SEO: A Comprehensive Framework for Healthcare Information Ranking**  
Authors: **RR Prianka, M Vedaraj & R Anto Arockia Rosaline**  
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DOI: <https://doi.org/10.1007/s40031-024-01154-4>  
Online Publication Date: 18 February 2025  
Pages: 1901–1916
- Title: **Adaptive Filtering Method Based on Deviation Compensation in Signal Processing**  
Authors: **Xia Liu, Kangyi Wang & Chongguang Liu**  
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DOI: <https://doi.org/10.1007/s40031-024-01193-x>  
Online Publication Date: 19 February 2025  
Pages: 1917–1928
- Title: **Performance Evaluation and Machine Learning Analysis of 3 kW Grid-Connected Bifacial Solar Photovoltaic Systems**  
Authors: **Bojja. Shiva Kumar, B. M. Kunar & Ch. S. N. Murthy**  
Department of Mining Engineering, NITK, Mangalore, Karnataka, India  
DOI: <https://doi.org/10.1007/s40031-025-01204-5>  
Online Publication Date: 24 February 2025  
Pages: 1929–1939
- Title: **CT-GANet: A Fusion of GAN and UNet for CT Image Segmentation of Interstitial Lung Disease Affected Lung**  
Authors: **Biswadev Goswami, Tapas Pal, Sagnik Das & Rajesh P. Barnwal**  
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DOI: <https://doi.org/10.1007/s40031-025-01203-6>

Online Publication Date: 26 February 2025

Pages: 1941–1952

Title: **An Approach for Real Time Implementation of Charging of Shunt Reactor Using Point on Wave Technique with Variable Pre-Insertion Resistor**

Authors: **S. N. Shivani, Bhargav Vyas, K. A. Bhatt, Meet I. Bhavsar & Vrushank M. Mistry**

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DOI: <https://doi.org/10.1007/s40031-025-01208-1>

Online Publication Date: 04 March 2025

Pages: 1953–1964

Title: **PyroNet: Leveraging Backpropagation Neural Networks for Fire Finding in Surveillance Systems**

Authors: **Rajesh Sharma & Javalkar Dinesh Kumar**

Department of Electronics & Communication Engineering, Lingayas Vidyapeeth, Faridabad, Haryana, India

DOI: <https://doi.org/10.1007/s40031-025-01209-0>

Online Publication Date: 07 March 2025

Pages: 1965–1971

Title: **Sovereign Butterfly Optimization and Flyback Converter Integration for Robust Photovoltaic Systems Under Partial Shading**

Authors: **Saqib Asgar Kanth, Baziga Youssuf & Sheikh Javed Iqbal**

Department of Electrical Engineering Jammu and Kashmir, NIT Srinagar, Srinagar, India

DOI: <https://doi.org/10.1007/s40031-025-01211-6>

Online Publication Date: 08 March 2025

Page: 1973–1991

Title: **A Coherent Analytical Model to Strengthen Vehicular Communication in VANET Using Droptail Priority Queue**

Authors: **Satyam Kumar, Bam Bahadur Sinha & Priyank Khare**

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DOI: <https://doi.org/10.1007/s40031-025-01206-3>

Online Publication Date: 10 March 2025

Pages: 1993–2004

Title: **Optimizing Hyperparameters for Credit Card Fraud Detection with Nature-Inspired Metaheuristic Algorithms in Machine Learning**

Authors: **Shiva Shankar Reddy, Kankanala Amrutha, V. MNSSVKR Gupta, K. VSSR Murthy & V. Venkata Rama Maheswara Rao**

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DOI: <https://doi.org/10.1007/s40031-025-01207-2>

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- Pages: 2005–2030
- Title: **Augmented Intelligence: A Comprehensive Review of the Flexibility Between Human and Artificial Intelligence**
- Author: **Nachaat Mohamed**  
Homeland Security Department, Rabdan Academy, Abu Dhabi, United Arab Emirates
- DOI: <https://doi.org/10.1007/s40031-025-01213-4>
- Online Publication Date: 21 March 2025
- Pages: 2031–2058
- Title: **Potential Studies on Fake News Detection in Twitter Using Credibility Analysis Framework**
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- DOI: <https://doi.org/10.1007/s40031-025-01254-9>
- Online Publication Date: 02 August 2025
- Pages: 2059–2071
- Title: **Blockchain Technology with Internet of Things (IoT) for Framing the Exploration Domain in Healthcare System**
- Authors: **Satwik Kanhere, Shivam Kumar Pandey, Amanpreet Kaur & Neha Sharma**  
Department of Computer Science and Engineering, Chitkara University Institute of Engineering & Technology, Chitkara University, Punjab, India
- DOI: <https://doi.org/10.1007/s40031-025-01265-6>
- Online Publication Date: 12 August 2025
- Page: 2073–2086
- Title: **Deep Learning-Based Sleep Stage Classification: A Systematic Review**
- Authors: **Santosh Kumar Satapathy, Tapan Patel, Madhuram Modi, Harsh Davra, Biswajit Brahma, Santosh Kumar Tripathy & Akash Kumar Bhoi**  
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- DOI: <https://doi.org/10.1007/s40031-025-01275-4>
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### Volume 106, Issue 6, December 2025

- Title: **Small Target Detection of Unmanned Aerial Vehicles Based on GDWNet in the Digital Economy**  
Authors: **Yan Zhang, Jing Zhang & Mas Rina Binti Mustaffa**  
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Department of Public Instruction, Anhui Vocational College of City Management, Anhui, 230000, China  
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Pages: 1687–1696
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Author: **Long Cai**  
College of Engineering Construction, Hunan Vocational College of Engineering, Changsha, Hunan, China  
College of Engineering, Xiangtan University, Xiangtan, Hunan, China  
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- Title: **Modelling the Deciding Factors of Industry 4.0: A Case of Iron and Steel Manufacturing Industry in India**  
Authors: **Hariom, Sonu Rajak & Amit Kumar**  
Department of Mechanical Engineering, National Institute of Technology Patna, Patna, India  
DOI: <https://doi.org/10.1007/s40032-025-01239-z>  
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Page: 1713–1736
- Title: **Performance, Combustion, and Emission Analysis of Petrol Engine Using Variable Blends**  
Authors: **Jyoti Umesh Pawar, Amit Kumar Saraf & Mahendra Pratap Singh**  
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DOI: <https://doi.org/10.1007/s40032-025-01246-0>  
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- Title: **Performance Evaluation of Vegetable Oils as Eco-Friendly Dielectrics in  $\mu$ -ED Milling of Nitinol for Enhanced Biocompatibility**  
Authors: **Satish Chaurasia & Kishore Debnath**  
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- DOI: <https://doi.org/10.1007/s40032-025-01250-4>  
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Pages: 1747–1753  
Title: **Research on Inventory Management of Cross-Border e-commerce Through Retail Demand Forecasting**  
Authors: **Junpeng Feng, Ling Su & Xingken Liu**  
School of Management, Guangzhou College of Technology and Business, No.28, Shiling South Ring Road, Huadu District, Guangzhou, 510800, Guangdong, China
- DOI: <https://doi.org/10.1007/s40032-025-01251-3>  
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Authors: **Wenle Wang, Qilong Li & Bo Zhang**  
School of Intelligent Manufacturing, Jiangsu Food & Pharmaceutical Science College, Huaian, 223005, China
- DOI: <https://doi.org/10.1007/s40032-025-01252-2>  
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Authors: **Shivangi Tyagi, Pushendra Singh & Kunwar Laiq Ahmad Khan**  
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- DOI: <https://doi.org/10.1007/s40032-025-01254-0>  
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Author: **Srinivasa Rao Pundru**  
Department of Mechanical Engineering, Mahatma Gandhi Institute of Technology, Telangana, 500075, Hyderabad, India
- DOI: <https://doi.org/10.1007/s40032-025-01255-z>  
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Author: **Abdeljelil Mankour**  
Centre of Satellite Development (CDS), BP4065, Ibn Roched, 3100, Oran, Algeria
- DOI: <https://doi.org/10.1007/s40032-025-01260-2>  
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Authors: **Surendra Kumar, Sourav Kansabanik & Nasir Hussain**  
CSIR-Central Mechanical Engineering Research Institute, Durgapur, 713209, India
- DOI: <https://doi.org/10.1007/s40032-025-01261-1>  
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- Authors: **Mohd Mobasshir, Azhar Equbal, Osama Khan, Praveen Pachauri, Mohd Parvez & Taufique Ahamad**  
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- Online Publication Date: 24 November 2025
- Pages: 1831 - 1844
- Title: **Machine Tool Assisted Robot Control Method Based on RRT Algorithm**
- Author: **Ruiling Hu**  
School of Mechanical and Electrical Engineering, Hebi Polytechnic, Hebi, 458030, HeNan, China
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- Pages: 1845 - 1857
- Title: **Vibration Behaviour of Shear-Actuated Bi-Directional FGPM Beams: A Finite Element Approach**
- Authors: **Akshansh Sharma, Srishti Dhakad, Pankaj Sharma & Sandeep Kumar Parashar**  
Department of Mechanical Engineering, Rajasthan Technical University, Kota, 324010, Rajasthan, India
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- Author: **Di Mu**  
Henan University of Animal Husbandry and Economy, Zhengzhou, 450000, Henan, China
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- Online Publication Date: 27 November 2025
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- Authors: **Likhith Pujari & Mantesh Basappa Khot**  
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- Online Publication Date: 24 November 2025
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- Title: **Optimization of Robotics Vision Using Modified MTF-COA Algorithms**
- Authors: **Yogesh Kamble, Nitin K. Kamble, Sandeep Sarnobat, Sudhanshu Pathak & Sachin Mane**  
DY Patil College of Engineering Akurdi , Pune, India
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- Pages: 1905–1918
- Title: **Numerical Analysis of Undulated Wing Profile to Delay Flow Separation**
- Authors: **M. Madhu & Shreyank P. Jois**  
Department of Mechanical Engineering, PES University, Bangalore, 560085, Karnataka, India
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Authors: **Luogang Mi & Yang Xiao**

Intelligent Manufacturing Department, Tangshan Vocational College of Science and Technology, Tangshan City, 063000, Hebei Province, China

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Authors: **Soumyadeep Mandal & Pranibesh Mandal**

Department of Mechanical Engineering, Jadavpur University, Kolkata, India

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Department of Computer Science and Engineering, Oriental University, Indore, Madhya Pradesh, India

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DOI: <https://doi.org/10.1007/s40032-025-01264-y>

Online Publication Date: 22 November 2025

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Authors: **M. Akhondizadeh, M. Masoumi & M. Yahyavian**

Mechanical Engineering Department, Sirjan University of Technology, Sirjan, Iran

DOI: <https://doi.org/10.1007/s40032-025-01188-7>

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DOI: <https://doi.org/10.1007/s40032-025-01258-w>  
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Pages: 2007–2020  
Title: **On La-Doped ZnO Reinforced PVDF Composite-Based Diaphragmatic Hernia Sensor for Bubalus Bubalis**  
Authors: **Gurwinder Singh, Vinay Kumar, Rupinder Singh, Ranvijay Kumar, Minhaz Husain & Pawan Kumar**  
Department of Mechanical Engineering, National Institute of Technical Teachers Training and Research, Chandigarh, India  
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### Volume 106, Issue 3, December 2025

Title: **Assessing the Von Mises Impact of HSS Twist-Drilled Holes on Pretreated Sandwich Composites Through FE Analysis**  
Authors: **M. Nagamadhu, S. Sathishkumar, G. Veerasha, K. V. Manjunath, Sachinkumar Patil, Rajesh Baitha, Md. Saeb Sufyan, Mohd Hamid Hussain & S. B. Kivade**  
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- Pages: 1347–1356
- Title: **Experimental Analysis Using Taguchi Optimization Technique on Wear Properties of AL-356 Alloy MMC Reinforced with SiC**
- Authors: **T. G. Rajiv, T. V. Sreerama Reddy & R. Chandrashekar**  
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- DOI: <https://doi.org/10.1007/s40033-024-00662-3>
- Online Publication Date: 29 February 2024
- Page: 1357–1366
- Title: **Structural Performance of FRP Wrapped Reinforced SCC Columns Made Utilizing Marginal Materials**
- Authors: **H. P. Vageesh & H. Eramma**  
Department of Studies in Civil Engineering, UBTD College of Engineering, Davanagere, Karnataka, 577004, India
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- Online Publication Date: 14 March 2024
- Page: 1367–1380
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- Authors: **Nitesh Sharma, Ojas Sharma & Saurabh Dewangan**  
Department of Mechanical Engineering, Manipal University Jaipur, Jaipur, Rajasthan, 303007, India
- DOI: <https://doi.org/10.1007/s40033-024-00685-w>
- Online Publication Date: 19 March 2024
- Pages: 1381–1392
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- Authors: **G. S. Pradeep Kumar, R. Keshavamurthy, M. Siva Santosh, Siddavatam Narayana Reddy & Vijay Tambrallimath**  
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- DOI: <https://doi.org/10.1007/s40033-024-00692-x>
- Online Publication Date: 22 March 2024
- Pages: 1393–1408
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- Authors: **Saurabh Dewangan, Avaneesh Rajesh Kulkarni, Rohit Varshney & P. Pavan Kumar Reddy**  
Department of Mechanical Engineering, Manipal University Jaipur, Jaipur, Rajasthan, 303007, India
- DOI: <https://doi.org/10.1007/s40033-024-00690-z>
- Online Publication Date: 23 March 2024
- Pages: 1409–1417
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- Authors: **R. Vijaya Kumar, M. M. Venugopal, K. G. Jaya Christiyani, P. Balachandra, T. Hemanth Raju, B. Manjunatha, T. Jagadeesha, Nikhil Rangaswamy, G. A. Manjunath & S. Udayashankar**  
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Authors: **Yurohman, Benni Ramadhoni, Singgih Prabowo, Jayatin, Dody Andi Winarto, Yogi Angga Swasono, Joddy Arya Laksmo, Mas Irfan Purbawanto Hidayat & Hosta Ardhyananta**

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Title: **Examining the Impact of Metallurgical and Optimised Machining Parameters on Inconel 713C Superalloy Using the Taguchi Technique**

Authors: **Vinayak P. Suryawanshi, Prashant D. Deshmukh & Yashwant Chapke**

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Authors: **Rajani Kanthreddy Kolagotla, B. Vijay Krishna, P. Bhargavi, Durga Venkatesh Janaki, B. Ramesh Babu, M. Vinod Babu, M. V. N. V. Satyanarayana & G. Naresh**  
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DOI: <https://doi.org/10.1007/s40033-024-00719-3>
- Online Publication Date: 17 April 2024  
Pages: 1463–1472  
Title: **Improving Mechanical Characteristics of Polyamide Through Varying Weight Percentages of Carbon Fiber Composites for Fused Deposition Modeling**  
Authors: **A. Senthilkumar, S. Muthukumar & K. Rajmohan**  
Department of Mechanical Engineering, University College of Engineering Panruti, Cuddalore, Tamil Nadu, 607106, India  
DOI: <https://doi.org/10.1007/s40033-024-00733-5>
- Online Publication Date: 17 April 2024  
Pages: 1473–1481  
Title: **Appraisal of Mechanical and Tribological Behaviour of Polyamide 6 with Carbon Fibre-Filled Composites Fabricated Through Fused Deposition Modelling**  
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DOI: <https://doi.org/10.1007/s40033-024-00735-3>
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Title: **Exploring the Tribo-corrosion Characteristics of Clay- and MgO-Reinforced Composites: A Comparative Study**  
Authors: **Shashi Prakash Dwivedi & Manish Maurya**  
Lloyd Institute of Engineering and Technology, Greater Noida, Uttar Pradesh, India  
Accurate Institute of Management and Technology, Greater Noida, Uttar Pradesh, India  
DOI: <https://doi.org/10.1007/s40033-024-00726-4>
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Pages: 1493–1502  
Title: **Study on the Characteristics of Novel Natural Fiber Extracted from Crescentia cujete Plant Fruits — An Alternate Reinforcement for Synthetic Materials**  
Authors: **Thandavamoorthy Raja & Devarajan Yuvarajan**  
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- Authors: **Atmaramudu Tirumalla, Raffi Mohammed, Surjan Sheik & Arun Kumar Gurralla**  
Department of Metallurgical and Materials Engineering, National Institute of Technology Andhra Pradesh, Tadepalligudem, A.P., 534101, India
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IET, Department of Mechanical Engineering, GLA University, Mathura, India  
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- Online Publication Date: 04 May 2024
- Pages: 1529–1541
- Title: **Enhanced Tribological Properties of Nano-TiO<sub>2</sub> Reinforced Polymer Composites Fabricated via Stereolithography**
- Authors: **Mahantesh M. Math, K V S Rajeswara Rao, M. N. Gururaja, J. S. Srikantamurthy, Suresh Erannagari, S. Ramesh, V L Jagannatha Guptha & B. N. Prashanth**  
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- DOI: <https://doi.org/10.1007/s40033-024-00752-2>
- Online Publication Date: 07 May 2024
- Pages: 1543–1555
- Title: **Analysis of Corrosion Polarization Behaviour in GNP/TiB<sub>2</sub> Reinforced Hybrid Al–Mg–Si–MMNCs for Marine Environments**
- Authors: **Ch. Maheswara Rao, K. G. Durga Prasad, K. Venkata Subbaiah & A. Ravindra**  
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- DOI: <https://doi.org/10.1007/s40033-024-00744-2>
- Online Publication Date: 10 May 2024
- Pages: 1557–1566
- Title: **Heat Input Effects on Microstructural and Mechanical Analysis of AA2014 Alloy in Friction Stir Welding: Influence of Rotational and Traverse Speed**

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- DOI: <https://doi.org/10.1007/s40033-024-00753-1>  
Online Publication Date: 12 May 2024  
Pages: 1567–1575
- Title: **Investigation on Mechanical and Tribological Characteristics of Al–Zn Alloys Under Different Conditions**
- Authors: **H. M. Pruthvi, Srikumar Biradar, D. S. Chetan Kumar, Iranna M. Biradar, M. C. Manjunatha, R. Prem Chand, B. N. Anil Kumar & Ghanashyam Shenoy**  
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- DOI: <https://doi.org/10.1007/s40033-024-00745-1>  
Online Publication Date: 18 May 2024  
Pages: 1577–1585
- Title: **A Review on the Microstructural and Biomedical Properties of Implants Manufactured Using Additive Manufacturing**
- Authors: **Praveen Kumar Verma, Hitesh Vasudev, Gurbhej Singh & Suresh Singh**  
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- DOI: <https://doi.org/10.1007/s40033-024-00755-z>  
Online Publication Date: 18 May 2024  
Pages: 1587–1601
- Title: **Enhancing HDPE Properties: Impact of Nano-TiO<sub>2</sub> and Nano-SiO<sub>2</sub> Particles on Mechanical Properties and Wear Resistance**
- Authors: **S. Ramanjaneyulu, B. S. N. Murthy, S. Phani Kumar & P. Siva V. N. B. Gupta**  
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- DOI: <https://doi.org/10.1007/s40033-024-00758-w>  
Online Publication Date: 19 May 2024  
Pages: 1603–1617
- Title: **Multi-response Optimization of Process Parameters in Stretch Blow Molding of PET Plastic Bottles**
- Authors: **Henok Hailu Merga, Devendra Kumar Sinha, Aklilu Getachew, Melese Workneh & Devender Singh Rathee**  
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- of Excellence Advanced Manufacturing Engineering, Adama Science and Technology University, Adama, Ethiopia  
Department of Electronics Engineering, School of Electrical Engineering and Computing, Adama Science and Technology University, Adama, Ethiopia  
DOI: <https://doi.org/10.1007/s40033-024-00759-9>  
Online Publication Date: 20 May 2024  
Pages: 1619–1633  
Title: **Effect of Spherical Ball Shoulder with Square Tool Pin on the Metallurgical and Mechanical Performance of Friction Stir Welded AA2219-T87 Alloy**  
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- DOI: <https://doi.org/10.1007/s40033-024-00756-y>  
Online Publication Date: 21 May 2024  
Pages: 1635–1649  
Title: **Optimizing Tribological and Mechanical Properties of Hypereutectic Al–Si Alloys Through Advanced Grain Engineering and Graphene Reinforcement**  
Authors: **Nitin A. Kharche, Ramakant M. Choudhari, Santosh R. Shekokar, Yugesh A. Kharche, Pranav G. Firke & Manish P. Aachliya**  
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- DOI: <https://doi.org/10.1007/s40033-024-00762-0>  
Online Publication Date: 22 May 2024  
Pages: 1651–1663  
Title: **Influence of Different Squeeze Pressures on Metallurgical and Tribological Behavior of A356 Silicon Carbide and MoS<sub>2</sub>-Based Hybrid Composites**  
Authors: **N. Ramasubbu, D. Kulandaivel & J. Aldrin Raj**  
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- DOI: <https://doi.org/10.1007/s40033-024-00763-z>  
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Pages: 1665–1676  
Title: **Mechanical and Thermal Evaluation of Partial Replacement Cement Mortar with Incorporation of Parali Straw Ash**  
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- DOI: <https://doi.org/10.1007/s40033-024-00728-2>  
Online Publication Date: 29 May 2024  
Pages: 1677–1684  
Title: **Fabrication of PVA-Based Flexible Shielding Composite Incorporating Areca Microfiber, Cobalt, and Activated Biochar Derived from Potato Peel**  
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- DOI: <https://doi.org/10.1007/s40033-024-00760-2>  
Online Publication Date: 03 June 2024  
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- Title: **Investigation in the Influence of the Composition of Metal Ferrite Based Composites on the Dielectric Constant Through Response Surface Methodology**
- Authors: **Santosh R. Shekokar, Harshal A. Chavan, Ramakant M. Choudhari, Nitin A. Kharche, Yugesh A. Kharche & Dhiraj D. Deshmukh**  
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- DOI: <https://doi.org/10.1007/s40033-024-00766-w>
- Online Publication Date: 06 June 2024
- Pages: 1697–1705
- Title: **Optimizing Wear Characteristics of Aluminium Powder Reinforced Epoxy Polymer Matrix Composite Using Taguchi Grey Relational Analysis Approach**
- Authors: **U. Suhas, K. N. Shashidhara, M. J. Raghavendra, Ravikiran Kamath Billady & S. Balaji**  
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- DOI: <https://doi.org/10.1007/s40033-024-00768-8>
- Online Publication Date: 08 June 2024
- Pages: 1707–1721
- Title: **Mechanical Behaviour of Silver and Copper Nanoparticles When Incorporated With Poly-Lactic Acid Nanoparticles**
- Authors: **Sujith Bobba, T. Malyadri, Z. Leman & J. Suresh Kumar**  
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- DOI: <https://doi.org/10.1007/s40033-024-00767-9>
- Online Publication Date: 10 June 2024
- Pages: 1723–1737
- Title: **Study on the Effect of Nanoparticles Extracted from Banyan Aerial Root Reinforced Porcelain Filler Blended PMMA Composite**
- Authors: **Thandavamoorthy Raja & Yuvarajan Devarajan**  
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- Online Publication Date: 11 June 2024
- Pages: 1739–1744
- Title: **Acoustic and Thermal Analysis of Composite Fibre Boards Fabricated Using Areca Catechu & Areca Husk Fibers**
- Authors: **Deviprasad Renjadi Neelappa, Suryanarayana Keerikadu & K. S. Lokesh**

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- DOI: <https://doi.org/10.1007/s40033-024-00775-9>  
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- DOI: <https://doi.org/10.1007/s40033-024-00771-z>  
Online Publication Date: 15 June 2024  
Pages: 1757–1765  
Title: **A Numerical Analysis of Materials Effects on Involute Helical Gear Set Meshing**  
Authors: **Akkasaligara Sathyanarayana Achari, Umesh M. Daivagna & C. R. Aprameya**  
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- DOI: <https://doi.org/10.1007/s40033-024-00741-5>  
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Pages: 1767–1784  
Title: **Parametric Study of Fretting Fatigue in Blade Disc Interface of a Fir-Tree Joint of Inconel 718 Super-Alloy**  
Authors: **G. C. Karthik, G. M. Sathyanarayana, B. Kuldeep, S. S. Manu, K. K. Pavan Kumar & K. P. Muthanna**  
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- DOI: <https://doi.org/10.1007/s40033-024-00783-9>  
Online Publication Date: 20 June 2024  
Pages: 1785–1796  
Title: **Experimental Investigations on Micro Hardness and Surface Morphology of Zn–TiO<sub>2</sub> Nano Particle Coating on Mild Steel**  
Authors: **Sushma A. Patil, Thippeswamy Ekbote, B. T. Ramesh, K. Sadashivappa & A. G. Shankarmurthy**  
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- DOI: <https://doi.org/10.1007/s40033-024-00789-3>  
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Title: **Formability and Strength Enhancement of AA7075 Sheets by Cryorolling and Post-Treatment**  
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Title: **Enhancing Mechanical Properties of Al-6061-Cu/Mg–Al<sub>2</sub>O<sub>3</sub>/SiC Composites: A Comparative Study of Stir Casting and Ultrasonic Casting Techniques**

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Pages: 1819–1832

Title: **Experimental Analysis of Hybrid Composite Sheets: Epoxy Resin Reinforced with Date Palm Fiber and Spent Alumina Catalyst**

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Pages: 1833–1839

Title: **Optimization of Processing Parameters and Wear Performance of B4C Reinforced Aa6061 Composites Through Taguchi Methodology**

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Title: **Microstructure, Hardness and Wear Study of Al7075-B4C Metal Matrix Composites**

Authors: **M. Rajanish, B. G. Avilasha, Purshotham P. Katti, M. V. Ashwini, T. A. Sudarshan, T. C. Anantha Padmanabham, G. Veerasha, P. Nagaraj, T. Hemanth Raju & S. Udayashankar**

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Title: **Machine Learning Based Surface Finish Prediction and Optimization of Process Parameters in Pulsed CO<sub>2</sub> Laser Cutting of Particle (TiC) Reinforced Al6061 Composite Using KNN & ANN**

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Title: **Analysis of the Wear and Mechanical Behavior of Stir-Casted Al-6061 Composites Reinforced by B4C Particles**

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Title: **On Three Body Abrasive Wear Resistance of Eggshell and Marble Powder Reinforced Hybrid Sustainable Polymer Composites**

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Pages: 1885–1894  
Title: **Multi-criteria Optimization for Wear and Friction Properties of Self-Lubricating Al6082-T6/GNP/TiB<sub>2</sub> Hybrid Composites**  
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- DOI: <https://doi.org/10.1007/s40033-024-00797-3>  
Online Publication Date: 25 August 2024  
Page: 1895–1909  
Title: **Mechanical and Optimization of Wear Characteristics of Aluminium Alloy Reinforced with Exfoliated Vermiculite Composite**  
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- DOI: <https://doi.org/10.1007/s40033-024-00803-8>  
Online Publication Date: 26 August 2024  
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Title: **Effect of Hemp and Sheep Wool Reinforcements on Mechanical and Acoustic Properties in Natural Fibre Polymer Composite using Vacuum Bag Moulding Process**  
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- DOI: <https://doi.org/10.1007/s40033-024-00807-4>  
Online Publication Date: 29 August 2024  
Pages: 1925–1934  
Title: **Influence of Fiber Type on Electrical, Thermal and Mechanical Properties of Glass Fiber Reinforced Polymer Composites for Insulation Panel Applications**  
Authors: **Gangadhar Mallappa Kanaginahal, Manish Vijaykumar Kademani, Nehal Maruti Godse, Kiran Channabasayya Hiremath, Ashwin Somanath Halagekar & Raghu Manohar Gunnagol**  
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- DOI: <https://doi.org/10.1007/s40033-024-00808-3>  
Online Publication Date: 29 August 2024  
Pages: 1935–1944  
Title: **Mechanical Properties, Density, and Morphology Analysis of Strong and Lightweight Microfibril Cellulose Reinforced Epoxy/Micro Balloon Hybrid Composites**  
Authors: **Ade Mundari Wijaya, Hosta Ardhyanta, Mas Irfan Purbawanto Hidayat, Annisa Rifathin, Joddy Arya Laksmono, Dwi Novriadi, Jayatin & Muhammad Yunus**  
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Pages: 1945–1956
- Title: **A Comparative Study on Various Natural Plant Fiber Composites**  
Authors: **Rahul Samanta, Sandip Kunar, Habib Masum, Shamim Haidar, Ziyauddin Seikh, Arijit Sinha & Gurudas Mandal**  
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- DOI: <https://doi.org/10.1007/s40033-024-00819-0>  
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Pages: 1957–1966
- Title: **Impact of Weld Time and Solution Treatment on the Performance of IN625 Spot Joints: An Experimental Study**  
Authors: **Swagat Dwibedi & Vivekananda Haldar**  
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- DOI: <https://doi.org/10.1007/s40033-024-00817-2>  
Online Publication Date: 01 October 2024  
Pages: 1967–1975
- Title: **Enhancing Mechanical Characteristics of LM9 Aluminum Alloy by Optimization of Electromagnetic Vibration Analysis**  
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- DOI: <https://doi.org/10.1007/s40033-024-00822-5>  
Online Publication Date: 07 October 2024  
Pages: 1977–1987
- Title: **Scratch Resistance Characteristics of Al-Si<sub>3</sub>N<sub>4</sub> Nano-composites Under Constant Load**  
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- DOI: <https://doi.org/10.1007/s40033-024-00826-1>  
Online Publication Date: 16 October 2024  
Pages: 1989–2002
- Title: **Effect of Heat Treatment (T6) on Mechanical Behaviour of Double Sized B4C Ceramic Particle Reinforced A356 Composite**  
Authors: **J. R. Chandrashekar, R. Chandrashekar, M. R. Haseebuddin & Y. L. Savitha**  
Department of Mechanical Engineering, Government Polytechnic, Kolar Gold Fields, Kolar Gold Fields, Karnataka, India  
Department of Mechanical Engineering, Sambhram Institute of Technology, Bengaluru, India  
Department of Mechanical Engineering, Dayananda Sagar College of Engineering, Bangalore, 560111, India  
Department of Mathematics, Dr. Ambedkar Institute of Technology, Bangalore, India

# Articles Published in Latest Issue of IEI Journals

Volume 10 | Issue 12 | December 2025

- DOI: <https://doi.org/10.1007/s40033-024-00825-2>  
Online Publication Date: 17 October 2024  
Pages: 2003–2010  
Title: **Incremental Sheet Forming of Duplex Stainless Steel; Effect of Microstructure and Texture Evolution on Tensile Behavior**  
Authors: **M. Subba Reddy, D. Lenin Singaravelu & C. Sathiya Narayanan**  
Department of Production Engineering, National Institute of Technology, Tiruchirappalli, Tamil Nadu, 620012, India  
Department of Mechanical Engineering, National Institute of Technology, Tiruchirappalli, Tamil Nadu, 620012, India
- DOI: <https://doi.org/10.1007/s40033-024-00824-3>  
Online Publication Date: 18 October 2024  
Pages: 2011–2020  
Title: **Fabrication of Centrifugally Cast TiB<sub>2</sub>-Al7075 Functionally Graded Material: Investigation on Microstructure and Mechanical Properties**  
Authors: **Amrit Mallick, Raj Kumar Sahu & Srinivasu Gangi Setti**  
Department of Mechanical Engineering, National Institute of Technology Raipur, Chhattisgarh, 492010, India
- DOI: <https://doi.org/10.1007/s40033-024-00829-y>  
Online Publication Date: 18 October 2024  
Pages: 2021–2029  
Title: **Assessing Formability Behavior of High-Strength Thermal Resistant (HSTR) Alloys**  
Authors: **Ranjeet Prasad, Manish Oraon & Vinay Sharma**  
Birla Institute of Technology, Mesra, Ranchi, India
- DOI: <https://doi.org/10.1007/s40033-024-00827-0>  
Online Publication Date: 23 October 2024  
Pages: 2031–2039  
Title: **Dump Stability Analysis for Factor of Safety Using Soft Computing**  
Authors: **Prashant Kumar Nayak, Pankaj Dewangan & A. K. Dash**  
Department of Mining Engineering, National Institute of Technology, Raipur, 492010, India
- DOI: <https://doi.org/10.1007/s40033-025-00888-9>  
Online Publication Date: 15 April 2025  
Pages: 2041–2049  
Title: **Indepth Mineralogical and Geochemical Characterisation of Lean Grade Placer Deposit for Assessing the Potential for Mining Operations of Industrial Critical Minerals**  
Authors: **Raghupatruni Bhima Rao & Bighnaraj Mishra**  
Formerly CSIR IMMT, Bhubaneswar, Odisha, India  
IREL (India) Limited, Chatrapur, Odisha, India
- DOI: <https://doi.org/10.1007/s40033-025-00899-6>  
Online Publication Date: 12 May 2025  
Pages: 2051–2064  
Title: **A Computer Program for Selection of Rational Width of Protective Water Barrier Pillars in Underground Coal Mines**  
Authors: **G. S. P. Singh, Ankush Galav & Vedant Shukla**  
Department of Mining Engineering, IIT (BHU) Varanasi, Varanasi, India
- DOI: <https://doi.org/10.1007/s40033-025-00901-1>  
Online Publication Date: 04 June 2025  
Pages: 2065–2085

# Articles Published in Latest Issue of IEI Journals

Volume 10 | Issue 12 | December 2025

- Title: **A Smart IoT-Based Environmental Monitoring (SIEM) Approach for Coal Mines Safety and Risk Mitigation**
- Authors: **Pulakesh Roy, Santu Mondal, Soumyadeep Paty, Arindam Biswas, Rajib Banerjee & Biru Rajak**  
Department of Mining Engineering, Kazi Nazrul University, Asansol, India  
Department of Computer Science Engineering, Brainware University, Kolkata, West Bengal, India  
Department of IT, Asansol Engineering College, Asansol, India  
Centre for IoT and AI Integration with Education-Industry-Agriculture, Kazi Nazrul University, Asansol, India  
School of Computer Science, UPES, Misraspatti, Uttarakhand, India  
Department of Computer Science, Asansol Girls' College, Paschim Bardhaman, 713304, India
- DOI: <https://doi.org/10.1007/s40033-025-00910-0>
- Online Publication Date: 04 June 2025
- Pages: 2087–2100
- Title: **An Empirical Approach for Investigating the Blast-Wave Propagation in Opencast Mine Bench Blasts Using Seismic Experiment**
- Authors: **Rajeev Verma & B. S. Choudhary**  
Department of Mining Engineering, IIT (ISM) Dhanbad, Dhanbad, 826004, India
- DOI: <https://doi.org/10.1007/s40033-025-00907-9>
- Online Publication Date: 16 June 2025
- Pages: 2101–2111
- Title: **An AI Enhanced IoT Driven Localization System (AIILS) for Underground Mine Environments through Implementation of Bluetooth Low Energy (BLE)**
- Authors: **Pulakesh Roy, Surabhi Solanki, Sachin Kumar, Santu Mondal, Sheuli Chakraborty, Biru Rajak, Rajib Banerjee & Arindam Biswas**  
Department of Computer Science Engineering, Brainware University, Kolkata, West Bengal, India  
Department of Mining Engineering, Kazi Nazrul University, Asansol, West Bengal, India  
School of Computer Science Engineering & Technology, Bennett University, Greater Noida, Uttar Pradesh, India  
Department of CSE, Manav Rachna International Institute of Research and Studies, Faridabad, Haryana, India  
Department of IT, Asansol Engineering College, Asansol, India  
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Department of Computer Science, Asansol Girls' College, Paschim Bardhaman, 713304, India  
School of Computer Science, UPES, Misraspatti, Uttarakhand, India  
Centre for IoT and AI Integration with Education-Industry-Agriculture, Kazi Nazrul University, Asansol, India
- DOI: <https://doi.org/10.1007/s40033-025-00918-6>
- Online Publication Date: 04 July 2025
- Pages: 2113–2131
- Title: **Towards the Engineering Science of Solidification: From Art to Automation**
- Author: **Partha Protim Chattopadhyay**  
National Institute of Advanced Manufacturing Technology, Ranchi, 834003, India
- DOI: <https://doi.org/10.1007/s40033-024-00774-w>
- Online Publication Date: 11 July 2024
- Pages: 2133–2140
- Title: **Modeling and Analysis of Die Design for Equal Channel Angular Pressing Process with Mechanical and Micro-structural Behaviour of Light Weight Materials**
- Authors: **Vishwesh Mishra & Piyush Singhal**  
Department of Mechanical Engineering, GLA University, Mathura, 281406, India

# Articles Published in Latest Issue of IEI Journals

Volume 10 | Issue 12 | December 2025

DOI: <https://doi.org/10.1007/s40033-024-00799-1>

Online Publication Date: 17 August 2024

Pages: 2141–2158

Title: **Reopening and Recovery of Fire Affected Sealed Panels: A Scientific Approach**

Authors: **S. K. Ray, D. Mishra, N. K. Mohalik, J. Pandey, A. M. Khan, Aditya Kumar & J. K. Pandey**

CSIR-Central Institute of Mining and Fuel Research, Dhanbad, India

Academy of Scientific and Innovative Research, Ghaziabad, India

DOI: <https://doi.org/10.1007/s40033-025-00909-7>

Online Publication Date: 03 June 2025

Pages: 2159–2170



## The Institution of Engineers (India)

### IEI YOUNG ENGINEERS AWARD 2026

#### Notification

The Institution of Engineers (India) is a multi-disciplinary professional body of engineers with 15 engineering disciplines and over 9,00,000 members in India and abroad. The Institution was established in 1920 and was incorporated by Royal Charter in 1935. It has been in the forefront of engineering profession addressing the socio engineering problems for progress of the country. IEI functions among professional engineers, academicians, research workers to update their professional knowledge through continuous professional development. With its large international linkages and a network of 124 Centres in India and Six Overseas Chapters, the Institution has built up wide reach and large infrastructure to meet its objectives of promoting engineering in all aspects.

With a view to promote the pursuit of excellence in the field of engineering, IEI has instituted 'IEI Young Engineers Award'. The Award consists of a Plaque and a Certificate. The purpose of the Award is to recognize outstanding achievements/contributions made by young engineers in engineering research, excellence in engineering technology development, technology transfer, etc. Any engineer citizen of India not older than **35 years** of age/women engineer citizen not older than **37 years** of age as on **March 31, 2026** is eligible for the Award, provided that he/she is a Corporate Member of IEI or has applied for IEI Membership. The IEI Young Engineers Award is presented to awardees for all the 15 Engineering Divisions of the IEI during the respective National Conventions.

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The Institution of Engineers (India)  
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Volume 10 | Issue 12 | December 2025



## Journal of The Institution of Engineers (India): Series E

[Chemical & Textile Engineering]

(Electronic ISSN: 2250-2491; Print ISSN: 2250-2483)

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### Volume 106, Issue 2, December 2025

- Title: **A Study on Recovery Kinetics of Zirconia from Beach Sand Zircon**  
Authors: **Rupambika Mohanty, Sunita Routray, Ranjita Swain, Rudra Narayan Mohapatro & Sarthak Prasad Sahoo**  
Chemical Engineering Department, C. V. Raman Global University, Bhubaneswar, Odisha, 752054, India  
Department of Mechanical Engineering, Centurion University of Technology and Management, Ramachandrapur, Jatni, Odisha, 752050, India  
DOI: <https://doi.org/10.1007/s40034-025-00303-8>  
Online Publication Date: 07 June 2025  
Pages: 105–114
- Title: **Synthesis and Characterization of Nanobiochar for Enhanced Photo Decolouration of Azoic Dye**  
Authors: **Raveena Malkari Katika & Sumalatha Boddu**  
Department of Chemical Engineering, Vignan's Foundation for Science, Technology and Research, Vadlamudi, Guntur, Andhra Pradesh, 522213, India  
DOI: <https://doi.org/10.1007/s40034-025-00304-7>  
Online Publication Date: 03 June 2025  
Page: 115–128
- Title: **Comparison of the Performance of Four Types of Turbine and Propeller Blades on Mixing Zinc Powder in Zinc Electrolyte Solution Using CFD**  
Authors: **Shamsedin Ghourejili, Vahid Vahid Fard, Keivan Shayesteh, Sara Masoumi & Yousef Mousavi**  
Department of Chemical Engineering, University of Mohaghegh Ardabili, Ardabil, Iran  
Innovation Center, Payame Noor University, Tehran, Iran  
Department of Chemical Engineering, School of Chemical and Petroleum Engineering, Shiraz University, Shiraz, Iran  
DOI: <https://doi.org/10.1007/s40034-025-00305-6>  
Online Publication Date: 31 May 2025  
Page: 129–139
- Title: **Catalytic Epoxidation of Palm Oil Using an In Situ Peracid Mechanism: Optimization and Kinetic Model**  
Authors: **Norin Hafizah Rahim, Muhammad Amirul Aiman Haiqal Mohd Tajudin, Intan Suhada Azmi & Mohd Jumain Jalil**  
Chemical Engineering Studies, Universiti Teknologi MARA (UiTM) Cawangan Johor, Kampus Pasir Gudang, 81750, Masai, Johor, Malaysia  
DOI: <https://doi.org/10.1007/s40034-025-00307-4>  
Online Publication Date: 11 August 2025  
Pages: 141–147
- Title: **Comfort Behavior of Car Seat Cover Produced from 3D Woven Solid Structures**  
Authors: **Ashok Kumar Shriwastawa, Shivangi Shukla & B. K. Behera**  
Department of Textile and Fiber Engineering, Indian Institute of Technology Delhi, Hauz Khas, New Delhi, 110016, India  
DOI: <https://doi.org/10.1007/s40034-025-00309-2>  
Online Publication Date: 08 September 2025  
Pages: 149–166
- Title: **Studies on Utilization of Solar Energy in Tasar Post Cocoon Technology Operations**  
Authors: **Debasis Chattopadhyay, Sameer Kumar Behera, Z. M. S. Khan, Umakanta Sahoo & Anil Kumar**

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Regional Silk Technological Research Station, Central Silk Technological Research Institute, Central Silk Board, Ministry of Textiles, Government of India, 76/B, Manaskamana Road, S. M. Pally, Malda, West Bengal, 732101, India

Mechanical Engineering Department, Indian Institute of Technology, Hauz Khas, New Delhi, 110016, India  
Central Tasar Research and Training Institute, Central Silk Board, Ministry of Textiles, Government of India, Nagri, Ranchi, 835303, India

National Institute of Solar Energy, Ministry of New and Renewable Energy, Government of India, Gwal Pahari, Gurugram- Faridabad Road, Gurugram, Haryana, 122003, India

Ministry of New and Renewable Energy, Government of India, Block No. 14, CGO Complex, Lodhi Road, New Delhi, 110003, India

DOI: <https://doi.org/10.1007/s40034-025-00311-8>

Online Publication Date: 01 October 2025

Pages: 167–179

Title: **Effects of Fiber Weight Percentage, Surface Modification, and Hybridization on the Physical and Mechanical Properties of Date-Palm Stem and Glass Fiber Epoxy Composite**

Authors: **Satchidananda Tripathy, Janaki Dehury & Alok Behera**

Department of Management, Paari School of Business, SRM University AP, Amaravati, Andhra Pradesh, 522240, India

Department of Mechanical Engineering, Veer Surendra Sai University of Technology, Sambalpur, 768018, India

Unitedworld Institute of Technology (UIT), Karnavati University Uvarsad, Gandhinagar, Gujarat, 382422, India

DOI: <https://doi.org/10.1007/s40034-025-00312-7>

Online Publication Date: 27 September 2025

Pages: 181–193

Title: **Enhancement of the Moisture Absorbency and Dyeing Properties of Polyester Fabric Through Coating with Pluronic Polymers**

Authors: **Pragnya Kanade, Prabir Pratihar, Bharat Patel, Rakesh Sharma & Neha Chauhan**

Department of Textile Engineering, Faculty of Technology and Engineering, The Maharaja Sayajirao University of Baroda, Vadodara, Gujarat, India

DOI: <https://doi.org/10.1007/s40034-025-00313-6>

Online Publication Date: 13 October 2025

Pages: 195–204

Title: **Experimental Evaluation of Temperature Variation in Solar Desalination Pond and its Effect on Evaporation Rate**

Authors: **Sogand Saatchi, Farshad Farahbod & Omid Alizadeh**

Department of Chemistry and Chemical Engineering, Ra.C., Islamic Azad University, Rasht, Iran

Department of Chemical Engineering, Fir.C., Islamic Azad University, Firoozabad, Iran

DOI: <https://doi.org/10.1007/s40034-025-00314-5>

Online Publication Date: 18 October 2025

Page: 205–215

Title: **Standardisation of Natural Dyeing of Cotton with Catechu using Gallnut and Potash-Alum as Dual Bio-Mordants and Evaluation of Its Antimicrobial and UV Resistance Properties with Eucalyptus Bio-Finish**

Authors: **Pubalina Samanta, Adwaita Konar & Asis Mukhopadhyay**

BFAD Dept, Rani Birla Girls' College, 38 Shakespeare Sarani, Kolkata, WB, 700 017, India

Govt. College of Engg. & Textile Technology, Serampore, 12, W C Rd, Hooghly, Serampore, WB, 712201, India

Dept of Jute and Fibre Technology, University of Calcutta, 35, B C Road, Kolkata, WB, 700 019, India

DOI: <https://doi.org/10.1007/s40034-025-00315-4>

Online Publication Date: 13 October 2025

Page: 217–238

Title: **Assessment of Quality of Drinking Water in Rural District Ratnagiri, Maharashtra: A Water Quality Index Approach**

Authors: **Manisha R. Giri, Vijay L. Gurav, Prashant Giri & Rohit Sunil Khedkar**

# Articles Published in Latest Issue of IEI Journals

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Department of Chemistry, Ratnagiri Subcampus Mumbai University, Ratnagiri, Maharashtra, India  
Department of Chemical Engineering, FAMT Ratnagiri, Ratnagiri, Maharashtra, India  
Department of Chemical Engineering, Faculty of Engineering and Technology, Sigma University, Vadodara, Gujarat, India

DOI: <https://doi.org/10.1007/s40034-025-00316-3>

Online Publication Date: 21 October 2025

Pages: 239–253

Title: **Analysis of Kinetics of Wet-on-Wet Dyeing of Cotton Using Reactive Dyes: Insights from ANOVA and Design Expert**

Authors: **Tamene Wagaw & K. Murugesh Babu**

Department of Textile Chemical Process Engineering, Ethiopian Institute of Textile and Fashion Technology, Bahir Dar University, Bahir Dar, Ethiopia

DOI: <https://doi.org/10.1007/s40034-025-00317-2>

Online Publication Date: 23 October 2025

Pages: 255–264

Title: **A Systematic Production of Medium-Chain Triglycerides Using Conventional and Advanced Methods**

Authors: **Manisha Bagal, Nileema Bokhale, Pratiksha Gadekar, Barnali Banerjee, Bruno Ramos & Ashish Mohod**

Department of Chemical Engineering, Bharati Vidyapeeth College of Engineering, Navi Mumbai, 400614, India

Department of Chemical Engineering, AISSMS College of Engineering, Kennedy Road, Pune, 411001, India

Chemical Engineering Department, Universidade de São Paulo, São Paulo, Brazil

DOI: <https://doi.org/10.1007/s40034-025-00318-1>

Online Publication Date: 01 November 2025

Pages: 265–276

Title: **Current Progress and Perspectives of Various Biological Technologies for Treatment of Gaseous Pollutants: A State-of-the-Art Review**

Authors: **Kizhakkumuriyil Purushan Anjumol, Partha Kundu, Indra Mani Mishra & A. V. Anju**

Environmental Technology Division, CSIR-National Institute for Interdisciplinary Science and Technology (CSIR-NIIST), Thiruvananthapuram, Kerala, 695019, India

Academy of Scientific and Innovative Research (AcSIR), Ghaziabad, Uttar Pradesh, 201002, India

Department of Chemical Engineering, Indian School of Mines, Dhanbad, Jharkhand, 826004, India

DOI: <https://doi.org/10.1007/s40034-025-00310-9>

Online Publication Date: 19 September 2025

Pages: 277–307

Title: **Preservation of Traditional Weaving Techniques Using Electronic Cardless Jacquard in Handloom Weaving**

Authors: **Kumaravelu R., Poornima S. & Rajendra Thilahar C**

Department of Artificial Intelligence Machine Learning, Saveetha Engineering College, Thandalam, Chennai, India

KP Technologies, Thirupanangadu Village, Thiruvannamalai, India

Artificial Intelligence and Data Science, Saveetha Engineering College, Thandalam, Chennai, India

DOI: <https://doi.org/10.1007/s40034-025-00308-3>

Online Publication Date: 18 September 2025

Pages: 309–316

Title: **Advancements in Smart Textiles and Ergonomic Innovations for Athletic Footwear: Enhancing Comfort, Performance, and Customization**

Authors: **Sweta Kumari & Manpreet Manshahia**

LGAD, Footwear Design and Development Institute, Noida, 201301, India

Amity School of Fashion Technology, Amity University, Uttar Pradesh, Noida, India

DOI: <https://doi.org/10.1007/s40034-025-00306-5>

Online Publication Date: 24 June 2025

Pages: 317–324

# Nota Bene

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(xiv) DOI: (Not required for Indian Engineering Congress/Annual Technical Volumes of IEI)	
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(xi) Book Chapter Number	
(xii) Publisher Details	
(xiii) ISBN	
(xiv) Date of Publication (Date-Month-Year)	
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(xvi) About the book (100-150 words)	
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*Note: Accommodate works published in journals/reputed conference proceedings/books for the last one year*

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Volume 10 | Issue 12 | December 2025

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Sl. No.	Name of the Course	Scheduled Dates
1.	Preparation of DPR and Tender Documents for Sewage Treatment Plant.	05 - 07 Jan 26
2.	Pumped Storage for Sustainable Power System - Implementation Challenges	05 - 07 Jan 26
3.	Artificial Intelligence and Machine Learning for Predictive Maintenance, and Process Automation in Process Industries	05 - 08 Jan 26
4.	Cyber Forensic Tools & Investigation Process	05 - 09 Jan 26
5.	Principles & Practices of Sustainable Mining: Corporate Social Responsibility, Social Impact Assessment, Dump Management, Controlled Blasting Techniques, Sewage Treatment, Bio-Medical Waste Management, Conservation and Recycling of Resources, Conversion of Wastes to Resources, Water-Body in Mined out Areas	05 - 09 Jan 26
6.	Planning, Design and Implementation of Water Supply Network and Distribution using GIS	05 - 09 Jan 26
7.	Electronics, Optical Test & Measurements	06 - 08 Jan 26
8.	Internal Auditor training - ISO 45001:2018 Occupational Health and Safety Management Systems	06 - 09 Jan 26
9.	Leadership Styles and Teambuilding Skills for Organisational Excellence	07 - 09 Jan 26
10.	Software Quality Assurance	19 - 21 Jan 26
11.	Effective Technical & Managerial Skills for Overman, Foremen, Electrical Supervisors & Chargehands in Industries.	19 - 21 Jan 26
12.	Design and Optimization of IoT Based Smart Irrigation System	19 - 21 Jan 26
13.	Non - Destructive Testing and Failure Analysis of Castings, Forgings, Weldments and Tubes	19 - 22 Jan 26
14.	ISO 9001:2015 QMS - Effective Implementation & Internal Auditor Training	19 - 22 Jan, 26
15.	Contract Management & Dispute Resolution in Engineering Projects	19 - 23 Jan 26
16.	Reciprocating compressors, screw compressors, pumps – Operational problems and remedial methods	19 - 23 Jan 26
17.	CEA Regulations 2023 - Measures relating to Safety, Electric Supply Associated Maintenance and Safety Practices	20 - 23 Jan 26
18.	Building Resilient Towns through Effective Solid Waste Management	21 - 23 Jan 26
19.	Training on Artificial Intelligence (AI) and Machine Learning	21 - 23 Jan 26
20.	Current Environment legislation and Regulations	22 - 24 Jan 26
21.	IT Solutions in DISCOMs	27 - 29 Jan 26
22.	CNC Cutting tools and Machining Techniques (Selection of Tools, Sustainable Cutting Fluids and Cutting Parameters for CNC Machining)	27 - 30 Jan 26
23.	Laboratory Management System Awareness & Internal Auditing (As per ISO/IEC 17025:2017 & NABL Requirements)	27 - 30 Jan 26
24.	Operation & maintenance of Hydro Mechanical Equipment Effective	28 - 30 Jan 26

For detail information please click on <https://escihyd.org/>