A Century of Service to the Nation

Volume 10 | Issue 4 | April 2025

IEI EPITOME

Inside this issue

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Er VB Singh
Editor
Maj Gen (Dr) MJS Syali, VSM (Retd)
Secretary & Director General
Special Contribution
Mr S Chakraverty, Dr K Sen, Mr D Nath, Mr S Bagchi, Mr B Mukherjee, Mr P Barik, Ms P Nath, Ms T Kumar, Mr S K Mishra
Design & Outlay
Ms H Roy

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Notification for IEI R&D Grant-in-Aid

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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) had instituted the R&D Grant-in-Aid program way back in 2001.

Every year, the Institution invites applications for funding industry-oriented R&D projects and research initiatives aimed at improving the life-style of common people from engineering students pursuing full time Diploma/UG/PG/PhD engineering program in AICTE/UGC/NAAC approved Institutions / Colleges / Universities. The application form and guidelines are available in 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(s), guide(s) and institution(s) are as follows:

Project Category	Student/Applicant Membership	Guide(s) Membership	Institutional Membership
1. Diploma	Exempted [Membership of Student Chapter is desirable]	AMIE/MIE/FIE	Not Mandatory
2. UG (BE/BTech/ Equivalent)	Student Member (SMIE)	AMIE/MIE/FIE	Applicant's Institute should preferably be an Institutional Member with NBA/NAAC Accreditation or valid NIRF Rank
3. PG (ME/MTech/ Equivalent)	AMIE/MIE/FIE	MIE/FIE	Applicant's Institute should preferably be an Institutional Member with NBA/NAAC Accreditation or valid NIRF Rank
4. PhD	AMIE/MIE/FIE	MIE/FIE	Applicant's Institute should preferably be an Institutional Member with NBA/NAAC Accreditation or valid NIRF Rank

The soft copy of the duly filled-up applications (in editable format), as per the proforma available on our website www.ieindia.org, should be sent through email to **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

Kindly go through the guidelines (visit link: **https://www.ieindia.org/webui/IEI-Activities.aspx#RnD-Initiative**) before filling up the application.

Members in the News

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Dr Saubhagya Kumar Panigrahi, FIE
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Dr Saubhagya Kumar Panigrahi received **Er Arta Bandhu Jena Award** from Odisha State Centre of IEI during the 63rd Annual Technical Session and 20th Prof (Dr) Bhubaneswar Behera Memorial Lecture held on 23 March 2024 in recognition of his outstanding paper titled "Evaluation of Fresh and Harden Characteristics in High Strength Self-Compating Geopolymer Concrete".

Er Ashok Kumar Panda, FIE
Executive Engineer
Military College of Electronics and Mechanical Engineering (MCEME), Secunderabad, Telangana
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Er Ashok Kumar Panda, Ph D Scholar of Poornima University, Jaipur, received the Certificate of Participation on the paper titled "Sustainable Green and Clean Energy: Need of Standardization" in the International Conference on 'Innovative Management Techniques for Sustainable Development (IMTSD-2025)' organized by the Faculty of Commerce & Management, Kalinga University, Chhattisgarh during 21-22 February 2025 in association with NIT Raipur.

Prof (Dr) Vinay Arun Kulkarni, FIE
Professor and Dean Quality Assurance
D Y Patil College of Engineering, Akurdi, Pune, Maharashtra

Prof (Dr) Vinay Arun Kulkarni received the Best Paper Award for the Best Oral Presentation at the National Conference on Indian Knowledge System with Science and Engineering Perspective, organized by Visvesvaraya National Institute of Technology, Nagpur during 28 February to 1 March 2025 for the valuable contribution to the academic discourse on the Indian Knowledge System and its relevance to Science and Engineering.

Corporate Air Ticketing for IEI Members

Corporate Members may book Corporate Air Ticket through M/s EBIX Travels Private Ltd.
For details please visit: https://www.ieindia.org/webui/IEI-AirTickets.html

Members in the News

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Senior Executive - NPD
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University Medal was awarded by Jadavpur University to **Er Sk Mirajul Haque** for standing **First in order of merit** in Material Engineering at the Master of Technology Examination 2024 on 24 December 2024.

The following esteemed corporate members were conferred with the prestigious **Professional Engineers** (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 Mohammed Jawahar Soufain, AMIE & PE7007561(Certified Professional Engineer, IEI)
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Valid up to: 31 March 2030

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Valid up to: 31 March 2030

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Valid up to: 31 March 2030

Members in the News

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Valid up to: 31 March 2030

Er Mirza Rafi Ahmed Baig, MIE & PE7007605 (Certified Professional Engineer, IEI)
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Valid up to: 31 March 2030

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Valid up to: 31 March 2030

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Valid up to: 31 March 2030

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Valid up to: 31 March 2030

Members in the News

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Valid up to: 31 March 2030

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Valid up to: 31 March 2030

ANNOUNCEMENT

Know-Your-Member (KYM)

Is your mobile number & e-mail updated with us ? If not, then please forward your Know-Your-Member (KYM) form immediately for participating in IEI Election process.

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 or scan the code:

https://www.ieindia.org/WebUI/ajax/Downloads/WebUI_PDF/HIGHLIGHTS_DOCUMENT-3332.pdf

Book

Dr Saubhagya Kumar Panigrahi, FIE
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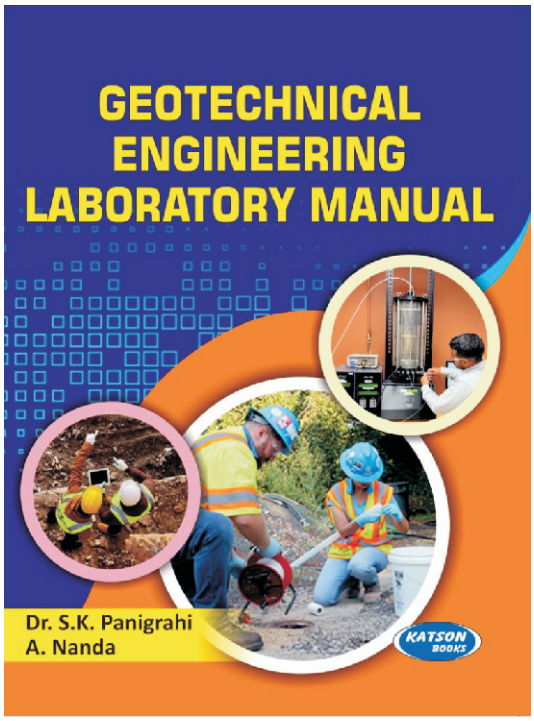
GEOTECHNICAL ENGINEERING LABORATORY MANUAL

About the Book

This manual is prepared to look at the needs of Civil Engineering students at both Undergraduate and Postgraduate levels. The contents of the manual are prepared to look at the needs of students, based on the author's perception of the nonexistence of a unified manual meeting the current trend of Research and Development along with the basic experiments. The manual is divided into four parts, each describing a group of properties of a similar kind. Part 1 (Experiment No. 1 to 26) describes the fundamental laboratory tests of soil consisting of Index Properties, Hydraulic Conductivity, Compressibility Characteristics, and Strength Characteristics. Part 2 (Experiment No. 27 to 37) refers to various field tests of soil comprising of Index Properties, Strength Characteristics, dynamic characteristics, and Geophysical characteristics of soil. Part 3 (Experiment No. 38 to 39) narrates the classification of soil based on various soil properties. Part 4 (Experiment No. 40 to 54) illustrates various laboratory tests on rocks based on their Index Properties and Strength Characteristics. An attempt is made through this Geotechnical Engineering Laboratory Manual to acquaint the students, academicians, and researchers with the corresponding codes either American Standards, British Standards, or Indian Standards based on which the experiment should be performed. In the absence of realistic codes or specific instruments in the concerned laboratory, standard practice methods adopted by several researchers can be accepted to perform the laboratory test.



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Book Type:	E-Book
Edition:	1st 2025
Publishing Year :	2025
Publisher Details:	S. K. Kataria & Sons, New Delhi

Book Chapter

Dr Saubhagya Kumar Panigrahi, FIE
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Title of Book Chapter: Application of Metaheuristic Spotted Hyena Optimization in Strength Prediction of Concrete

Chapter Number 08, Metaheuristics-Based Materials Optimization, Enhancing Materials Applications, Elsevier Series in Mechanics of Advanced Materials, Elsevier, 2025, pp 229-248, ISBN: 978-0-443-29162-3

DOI: https://doi.org/10.1016/B978-0-443-29162-3.00008-3

Co-author: Suraj Kumar Parhi

Abstract: *In this study, an application of metaheuristic spotted hyena optimization (SHO) is provided by using it for hyperparameter tuning of the XGBoost model to enhance concrete strength prediction accuracy. The metaheuristic SHO was compared with grid search optimization and random search optimization. A pseudo-codehas also been provided that illustrates the steps used for hyperparameter optimization of XGBoost. The case study used a UCI database of concrete compressive strength containing 1030 data points. The dataset was normalized and preprocessed before the development of the predictive model. The convergence of SHO-XGBoost was indicated superior compared to the convergence of iterative-based grid search and random search optimized XGBoost. The SHO-XGBoost also out performed the other two models showing higher accuracy of* R^2 *0.94 and lower errors. The SHAP-based sensitivity analysis confirmed the Age of concrete as the most critical parameter regarding concrete strength development followed by cement content, water content, and superplasticizer content.*

Paper published in the Journals / Proceedings

Dr Saubhagya Kumar Panigrahi, FIE
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Title of Paper: Sustainable Self-Compacting Conventional Concrete Development with Optimal Content of Ladle Furnace Slag concerning Mechanical and Durability Characteristics

Construction and Building Materials, Elsevier, 471, 11 April 2025, Online ISSN: 1879-0526, Print ISSN: 0950-0618

DOI: https://doi.org/10.1016/j.conbuildmat.2025.140761

Co-authors: Soumyaranjan Panda & Monalin Pradhan

Abstract: *The expeditious urbanization is responsible for enormous Ordinary Portland Cement (OPC) production leading to proportionate greenhouse gas emissions, reducing available natural raw materials required for OPC manufacturing, and vandalizing the ecological balance. The annual escalating accumulation rate of industrial waste is responsible for the degradation of environmental parameters. Thus, a balancing approach leading to sustainability must be attained by replacing the binder cement partially with various Industrial wastes having cementitious value called supplementary cementitious material (SCM). In the current study, the slag from ladle furnaces called ladle furnace slag (LFS), a solid waste product of the steel industry is adopted as the SCM, systematically replacing the cement partially by5%, 10%, 15%, 20%, 25%, 30%, and 35%, yielding M25 grade Self-Compacting Concrete (SCC). The blended binder-based workable SCC thus realized is compared with the control conventional SCC of the same grade through various hardened concrete characteristics. All blended binder-based fresh SCC are subjected to necessary workability (flowability, passing ability, and segregation resistance) test, and after due curing period, the hardened SCC are subjected to the physical (density assessment) test, mechanical [ultrasonic pulse velocity (UPV) test, rebound hammer (RH) test, compressive (CS) and split tensile strength (STS) assessment] test, and durability (physical, water transportation, chemical resistance, and corrosion characteristics) tests to establish the LFS optimal content. The hardened SCC characteristics thus achieved are also delineated through different microstructural analyses like scanning electron microscopy (SEM), and energy dispersive X-ray spectroscopy (EDX) tests. Through the detailed SCC characterization, 15% LFS replacement is resolved as the optimal content, and further enhancement till 30% yielded unbefitting SCC, beyond 30% replacement is discouraged, leading to a sustainable construction mellowing sensible waste management. The study manifests that LFS utilization in concrete as an SCM effectively rationalizes sustainability through a notable reduction of embodied energy and carbon emissions along with production costs, disposing of OPC-LFS-based concrete at its optimal combination as a promising alternative to conventional OPC-based concrete.*

Keywords: *Ladle Furnace Slag; SCC; Workability; Mechanical Properties; Durability*

Title of Paper: Production of Durable Conventional Concrete using Recycled HDPE and PET Plastic Coarse Aggregate

Innovative Infrastructure Solutions, Springer, 10, Article number 74, 04 February 2025, Electronic ISSN: 2364-4184, Print ISSN: 2364-4176

DOI: https://doi.org/10.1007/s41062-025-01886-2

Co-authors: Ashutosh Nanda & Soumyaranjan Panda

Abstract: *The profusion of plastic waste creates a major environmental sustainability issue as it pollutes the ecosystem. Thus, effective plastic waste management is a global concern. Plastic waste disposal is hazardous due to its longer degradation period. Hence, reuse through recycling these wastes as green construction materials in the form of aggregates can potentially reduce the environmental burden. The current study involves the production of plastic-supplemented conventional concrete (PSCC), a lightweight concrete (LWC) through the use of both high-density polyethylene (HDPE) and polyethylene terephthalate (PET) plastics as coarse aggregates, replacing natural coarse aggregate (NCA) in varying percentages. A comparative study between HDPE along with PET-based PSCC is administered with an establishment of optimal plastic aggregate replacement levels concerning both the fresh and hardened (physical, mechanical, durability, and microstructure) concrete properties promoting sustainable construction practice. The mentioned detailed test analysis converges to an optimal replacement level of 10% HDPE and 5% PET against NCA, yielding superior workable and durable concrete leading to effective solid waste management.*

Keywords: *HDPE: PET; Plastic-supplemented conventional concrete ; Mechanical; Durability; Microstructure*

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Title of Paper: **Commercialization of Waste Tyre using a Simple Recycling Process**

Environmental Engineering and Management Journal, 24(1), January 2025, pp 63-77, Print ISSN: 1582-9596, eISSN: 1843-3707
DOI: http://doi.org/10.30638/eemj.2025.006

Co-authors: Godwin Barnabas & Arun Vasantha Geethan

Abstract: *The inability of tires to biodegrade harms the environment and the entire ecosystem. Sometimes, discarding or keeping these old tyres in one location can turn them into a breeding ground for germs, insects, and mosquitoes, leading to infectious illnesses. Wood waste is compressed into crumb rubber as a powder using hot pressing. The scrap wood and crumb rubber used to create the wood rubber composite have good mechanical qualities. After completing the tensile, tear, and thermal testing, it was discovered that the tensile strength is of the commercial material is 7.848 MPa, which is closer to that of virgin rubber (10 MPa). Over 120 N is Known to be the yield/break force. The yield elongation and %age elongation are determined to be close to 180%, similar to those of virgin rubber. In addition to its mechanical characteristics, it exhibits water absorption rates closer to 1 part in a thousand cycles and extremely little chemical erosion, similar to virgin rubber. The manufactured recycled crumb rubber is also suitable for commercial applications, including flooring, sound insulation, heavy-duty performance, and vibration absorption due to the aforementioned qualities.*

Keywords: *Commercial Material; Crumb Rubber; Hot Pressing; Old Tyres; Recycled*

Dr Somnath Mahato, MIE
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Title of Paper: **PPP Performance of Dual-Frequency, Compact, Low-Cost GNSS Modules: A Novel Study**

MAPAN-Journal of Metrology Society of India, Springer, 07 February 2025, Electronic ISSN: 0974-9853, Print ISSN: 0970-3950

DOI: https://doi.org/10.1007/s12647-025-00807-z

Co-authors: Adebayo Segun Adewumi, Susmita Samanta, Anshula Das & Anindya Bose

Abstract: *This manuscript presents the suitability of the compact, low-cost, dual frequency GNSS modules (CLD) for GNSS precise points positioning (PPP) by comparing the results with simultaneously operating costly geodetic receivers using two CLD modules and two geodetic receivers. Online PPP is done from NRCan, Canada, using the rapid, ultra-rapid, and final IGS products. The results show the similar performance of all the hardware with the clear advantage of cost, size, and power requirements in case of the CLD modules; 3 mm × 3 mm × 10 mm PPP position uncertainty with 95% confidence is achieved in latitude, longitude, and altitude respectively for an uBlox ZED F9P CLD module and similar performance for an NTLab 104v3 CLD module in GPS + GLONASS hybrid operation like the geodetic receivers. It is also observed that the GPS + GLONASS hybrid operation provides better performance than single-constellation operations, and the use of final IGS products marginally improves the solution quality. The results would be useful in implementing cost and power-efficient, precise GNSS PPP for relevant applications.*

Keywords: *GNSS; PPP; IGS; Low-cost; Receiver; Modules*

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Title of Paper: **Customized Measurable Availability Framework of Sewage Treatment Plant Through Risk Priority Number**

MAPAN - Journal of Metrology Society of India, Springer, 40, March 2025, pp 77–88, Electronic ISSN: 0974-9853, Print ISSN: 0970-3950

DOI: https://doi.org/10.1007/s12647-024-00787-6

Co-author: Ashwini R Patil

Abstract: *This study presents a robust framework for improving Sewage Treatment Plant (STP) operations using a Risk Priority Number (RPN) approach, integrated with an action plan to address the complexities involved in managing STPs. A study was conducted on 30 MLD STP plant focusing on quantitative assessments for metrological enhancement of reliability and efficiency of components. 37 critical components and implementable actionable solutions that significantly enhance the plants' performance are identified. The study demonstrated the average improvement of 61.1% in the availability of STP operations. The mathematical modeling, accurate measurements provided by metrology and quality related issues like FMEA, offer valuable insights into the optimization of STP operations, ensuring sustainable and economical viable wastewater management solutions. Additionally, the research framework confirms that the treated water quality complies with regulatory standards, including turbidity and contamination levels.*

Keywords: *STP; RPN; Mathematical Modeling; Availability*

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[SCOPUS Indexed]
For download, use Membership ID through: www.ieindia.org

Volume 106, Issue 2, April 2025

Title: **Identifying Subtypes of Acute Lymphoblastic Leukemia Using Blood Smear Images: A Hybrid Learning Approach**

Authors: **Roopashree Nayak, Anush Bekal, Malini Suvarna & Dayakshini Sathish**
Sahyadri College of Engineering & Management, Mangaluru, India
Affiliated to Visvesvaraya Technological University, Belagavi, India
Tontadarya College of Engineering, Gadag, India
St. Joseph Engineering College, Mangaluru, India

DOI: https://doi.org/10.1007/s40031-024-01069-0
Online Publication Date: 11 May 2024
Pages: 425–436

Title: **A Fault-Tolerant Inverter Using a New Fuzzy-Based Detection Algorithm**

Authors: **Somesh Mohapatra & Bibhu Prasad Panigrahi**
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DOI: https://doi.org/10.1007/s40031-024-01087-y
Online Publication Date: 24 June 2024
Page: 437–457

Title: **Optimizing Image Retrieval in Cloud Servers with TN-AGW: A Secure and Efficient Approach**

Authors: **N. P. Ponnuviji, G. Nirmala, M. L. Sworna Kokila & S. Indra Priyadharshini**
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School of Computer Science and Engineering, Vellore Institute of Technology, Chennai, India
DOI: https://doi.org/10.1007/s40031-024-01098-9
Online Publication Date: 14 July 2024
Page: 459–473

Title: **EHRT-RWB: A Novel Ensemble Hybrid Recurrent Transformer for Multimodal Heart Disease Risk Prediction**

Authors: **D. Shiny Irene, J. Selvin Paul Peter, Nivetha Sankarasubramanian & S. Praveen Krishnakanth**
Department of Computing Technologies, School of Computing, Colllege of Engineering and Technology, SRM Institute of Science and Technology, Kattankulathur Campus, Chennai, India
DOI: https://doi.org/10.1007/s40031-024-01085-0
Online Publication Date: 02 July 2024
Pages: 475–486

Title: **Optimal Planning of Transmission Network for Evacuation of Power from High Capacity Generators in Thermal Power Stations Replacing Lower Capacity Units**

Authors: **Rajeev Kumar Chauhan, Mohan Manohar Dhoke, Sanjay Kumar Maurya & Durg Singh Chauhan**
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Department of Electrical Engineering, GLA University, Mathura, UP, India
DOI: https://doi.org/10.1007/s40031-024-01101-3
Online Publication Date: 06 July 2024
Pages: 487–508

Title: **3,4-Quasirung Fuzzy Based Prospect Theory Approach for Identification of Suitable Microgrid Scenario**

Authors: **Sweta Singh, Neeraj Kanwar & Divya Zindani**
Department of Electrical Engineering, Manipal University Jaipur, Jaipur, India
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DOI: https://doi.org/10.1007/s40031-024-01102-2
Online Publication Date: 01 July 2024
Pages: 509–519

Title: **An Approach to Identify the Complete Reduplicated Multiword Expressions in Digital Bengali Text**

Author: **Subrata Pan**
Department of Information Technology, Bankura Unnayani Institute of Engineering, Bankura, 722146, West Bengal, India
DOI: https://doi.org/10.1007/s40031-024-01104-0
Online Publication Date: 15 July 2024
Pages: 521–537

Articles Published in Latest Issue of IEI Journals

Volume 10 | Issue 4 | April 2025

Title: **Investigation of Fatigue and Drowsiness of Welders and Goldsmiths Based on Entropies and Complexity Parameters of EOGs: A Statistical Approach**

Authors: **Ashis Kumar Das, Prashant Kumar & Suman Halder**
Department of Electrical Engineering, National Institute of Technology, Durgapur, 713209, India
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Department of Electrical Engineering, Chandigarh University, Punjab, Mohali, India

DOI: https://doi.org/10.1007/s40031-024-01107-x
Online Publication Date: 05 July 2024
Pages: 539–556

Title: **Experimental Investigation on Insulation Performance of SO_2/CO_2 Gas Mixtures**

Authors: **Akhilesh Kumar Pandey, Pushpendra Singh, Mohd. Shahnawaz Khan & Jitendra Kumar Singh**
JK Lakshmipat University (JKLU), Jaipur, India
Program Director and Professor -Energy Sciences, Atria University, Bangalore, India

DOI: https://doi.org/10.1007/s40031-024-01108-w
Online Publication Date: 08 July 2024
Pages: 557–568

Title: **Appropriate Mother Wavelet Selection with Optimum Level of Disintegration for Analyzing Various Faults of Induction Motor Under Variation in Motor Loading**

Authors: **Arunava Kabiraj Thakur, Alok Mukherjee, Palash Kumar Kundu & Arabinda Das**
Department of Electrical Engineering, Techno Main Salt Lake, EM-4/1, Sector-V, Bidhannagar Salt Lake, Kolkata, West Bengal, 700091, India
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DOI: https://doi.org/10.1007/s40031-024-01109-9
Online Publication Date: 11 July 2024
Pages: 569–591

Title: **Deep Learning Traffic Prediction and Resource Management for 5G RAN Slicing**

Authors: **Dhanashree Kulkarni, Mithra Venkatesan & Anju V. Kulkarni**
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Dayananda Sagar College of Engineering, Bengaluru, India

DOI: https://doi.org/10.1007/s40031-024-01110-2
Online Publication Date: 15 July 2024
Pages: 593–606

Title: **Implementing Blockchain Technology in the Indian Context to Enable the Secure Exchange of Patients' Information with Government Agencies**

Authors: **Poonam Verma, Vikas Tripathi & Bhaskar Pant**
Graphic Era Deemed University, Graphic Era Hill University, Dehradun, Uttrakhand, India

DOI: https://doi.org/10.1007/s40031-024-01112-0

Online Publication Date: 12 July 2024
Pages: 607–621

Title: **An Improved Graph Partitioning Algorithm Based Approach for Workflow Offloading in a Fog Environment**

Authors: **Neetu Narang Mahajan & Parmeet Kaur**
Department of Computer Science and Engineering, Jaypee Institute of Information Technology, Noida, India

DOI: https://doi.org/10.1007/s40031-024-01113-z
Online Publication Date: 16 July 2024
Pages: 623–634

Title: **Development of Technologies for Prevention of Wild-Animal Related Losses to Agricultural Fields**

Authors: **Srinath Doss, Rajiv Kumar & Jothi Paranthaman**
Faculty of Engineering and Technology, Botho University, Gaborone, Botswana
School of Computer Science Engineering and Technology, Bennett University, Greater Noida,Uttar Pradesh, India
Faculty of Engineering, Gaborone University College of Law and Professional studies, Gaborone, Botswana

DOI: https://doi.org/10.1007/s40031-024-01115-x
Online Publication Date: 15 July 2024
Pages: 635–646

Title: **Overcoming Thermocouple Non-linearity: A Novel Algorithmic Framework for Improved Temperature Sensing**

Authors: **Nilanjan Byabarta, Abir Chatterjee & Swarup Kumar Mitra**
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Pages: 647–660

Title: **A Combination of Deep Neural Network and Fuzzy Clustering for EEG-Based Alcoholism Diagnosis**

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Title: **AVR-PSS Generator with Fuzzy Logic Controller and Conventional Damping of Low-Frequency Oscillations**

Authors: **Nilay Patel, Biswajit Brahma, Akash Kumar Bhoi & Jigar Sarda**
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Title: **A Novel Finite-Time Fault Estimator with an Unknown Input Structure for Asynchronous Nonlinear Switched Systems**

Authors: **Yu Liu, YingJian Sun & Yanhong Fu**
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Authors: **Shiny Irene David Amirtharaj, Pushpalatha Marudappa, Lade Sachin & Mohammad Khalid**
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Online Publication Date: 02 August 2024
Pages: 697–711

Title: **Ultra Low Power and High Speed Electronic Circuits Using Double Gate Tunnel Field Effect Transistor**

Authors: **Ch. Pavan Kumar & K. Sivani**
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Author: **Yijun Xu**
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Pages: 735–760

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Authors: **Chinnem Rama Mohan, Rapelli Naga Sathvik, Chitta Kushal, S. Kiran & A. Ashok Kumar**
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Authors: **Yongle Zhang & Junlai Feng**
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Authors: **K. Jeykishan Kumar**
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Title: **Electric Discharge Machining with Graphene Reinforced Aluminium Metal Matrix Composite (Gr Al MMC) Tool for EN 31 Die Steel Work Piece**
Authors: **Subrata Mondal, Goutam Paul, Koustov Mondol & Subhas Chandra Mondal**
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Pages: 541–551

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Authors: **Sanket Sharad Chaudhari, Kiran Suresh Bhole & Santosh Bhagwat Rane**
Department of Mechanical Engineering, Sardar Patel College of Engineering, Mumbai, India
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Page: 553–569

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Author: **Aihuan Zhang**
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Page: 571–584

Title: **Injection Molding Optimization Based on Multi-parameter Improvement Under Lightweight Design**
Author: **Xiaoying Wang**
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Authors: **Suraj Swami, Shashank Phulmali, Madan Narayanan, Bharatbhushan S. Kale & Kiran Suresh Bhole**
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Authors: **Aman Singh Thakur, T. Lawrence Alex & Amrita Nighojkar**
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Title: **Exploring Optimal Motion Strategies: A Comprehensive Study of Various Trajectory Planning Schemes for Trajectory Selection of Robotic Manipulator**

Author: **Abhishek Shrivastava**
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Naval Architecture and Port Engineering College, Shandong Jiaotong University, Weihai, 264209, China
CIMC Offshore Engineering Research Institute Co, Yantai, 264000, China
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3.	Data Management using MS Access & MS Excel 2019	06 - 09 May 25
4.	Techno–Managerial Excellence for Engineering Managers	07 - 09 May 25
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